

Traffic Impact Study

Rogers Bridge Road Tract City of Johns Creek, Georgia

Prepared for:
Rogers Family Partnership

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1.0 INTRODUCTION

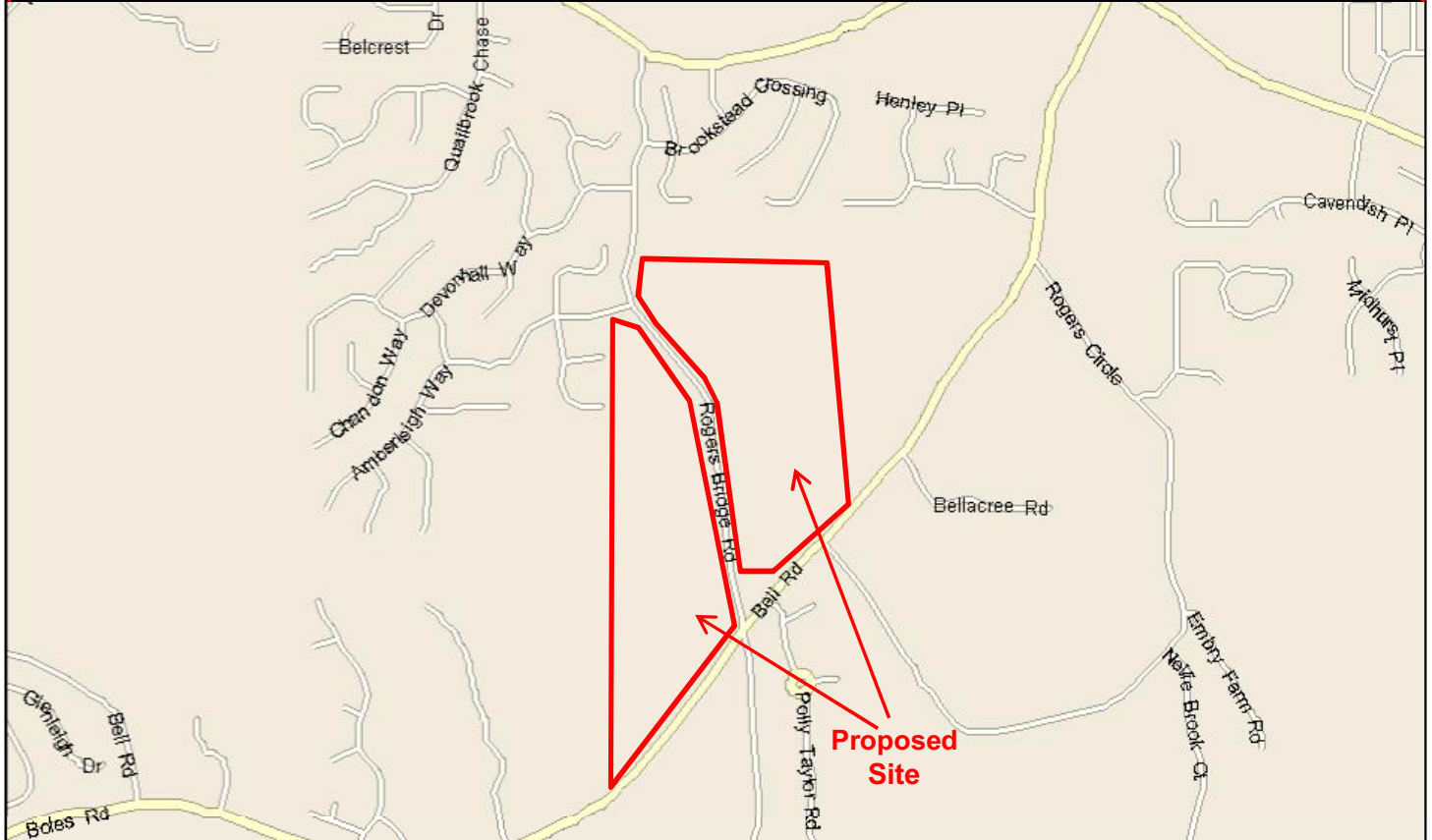
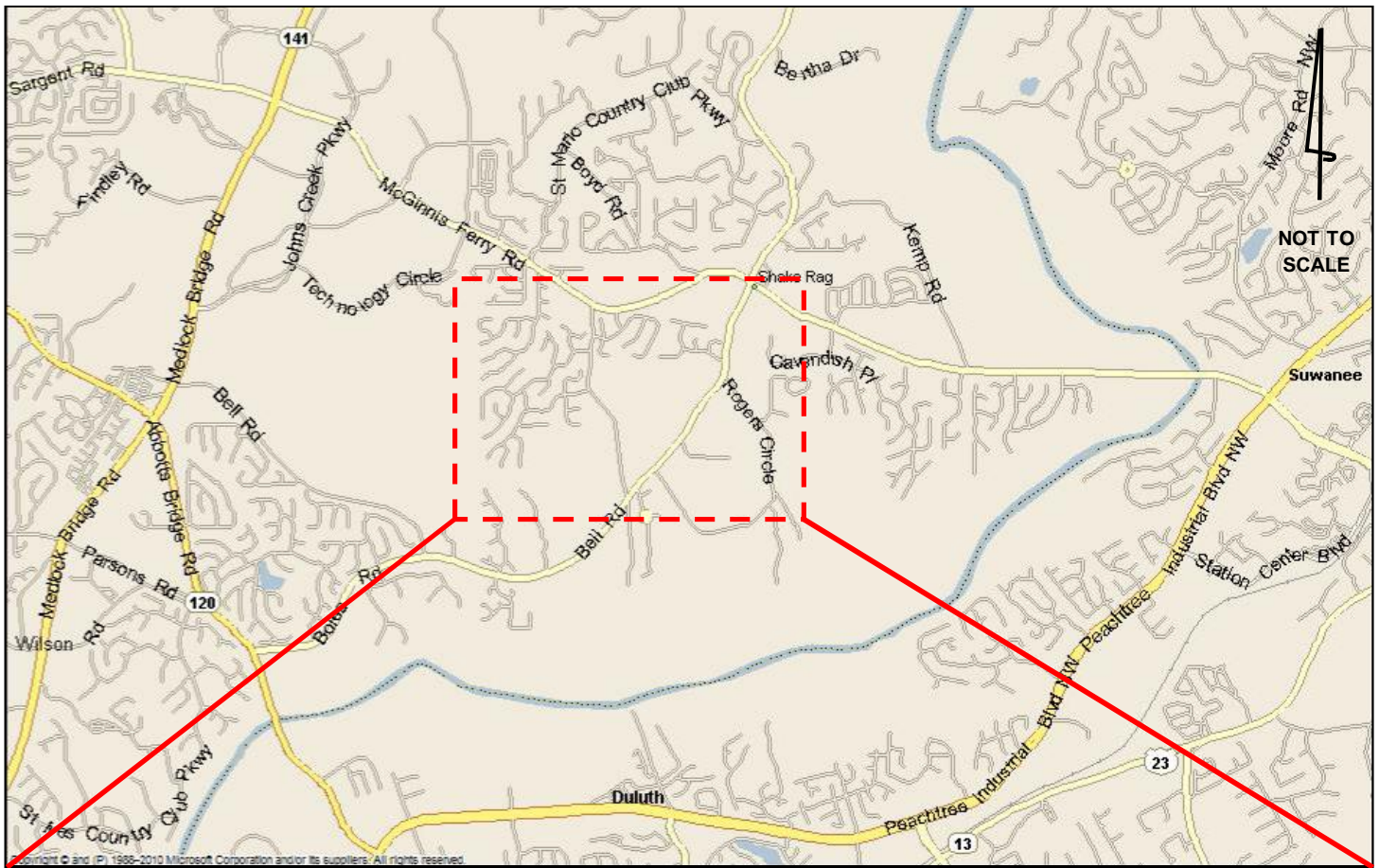
This report presents the analysis of the anticipated traffic impacts associated with the proposed Rogers Bridge Road Tract, a residential development consisting of approximately 273 single-family homes. The approximate 105-acre site is located on both sides of Rogers Bridge Road, northwest of Bell Road and south of McGinnis Ferry Road in the City of Johns Creek, Georgia. The proposed development will be served by multiple driveways along Rogers Bridge Road and one along Bell Road. **Figure 1** and **Figure 2** provide a location map and aerial photograph of the proposed site. Additionally, a copy of the proposed site plan is provided in **Appendix A**. The development is scheduled to be completed by 2020, and this analysis will consider the existing 2013 traffic conditions, the projected 2020 no-build traffic conditions (background traffic growth), and the projected 2020 build conditions (background traffic growth plus the proposed development traffic).

2.0 STUDY AREA DETERMINATION

The study area has been identified to include the proposed site access as well as two existing intersections along Rogers Bridge Road: the signalized intersection at McGinnis Ferry Road (Intersection #1) and the unsignalized intersection at Bell Road (Intersection #2). The proposed site access will consist of three (3) full-movement driveways along Rogers Bridge Road and one along Bell Road, approximately 1,000 feet southwest of Rogers Bridge Road. For the purposes of the traffic impact study, Rogers Bridge Road is considered to have a north-south orientation, and Bell Road is considered to have an east-west orientation.

3.0 EXISTING TRAFFIC CONDITIONS

Rogers Bridge Road is currently a 2-lane urban local road with a posted speed limit of 35 MPH adjacent to the site. McGinnis Ferry Road is currently a 4-lane divided urban minor arterial with a 2012 AADT of 16,550 vehicles per day and a posted speed limit of 45 MPH adjacent to the site. Bell Road is currently a 2-lane urban collector with a 2012 AADT of 5,460 vehicles per day and a posted speed limit of 45 MPH adjacent to the site.



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Rogers Bridge Road Tract Traffic Impact Study

Site Location

Figure
1



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Aerial

Figure
2

Vehicle peak hour turning movement counts were performed at the two existing intersections in the study area on November 19, 2013. According to the traffic count information, the AM peak hour for the intersection of Rogers Bridge Road and McGinnis Ferry Road occurred from 7:30-8:30, and the PM peak hour occurred from 5:15-6:15. For the intersection of Rogers Bridge Road and Bell Road, the AM peak hour occurred from 7:30-8:30, and the PM peak occurred from 4:45-5:45. The raw counts are provided in **Appendix E**. Site photographs, provided in **Appendix B**, were also collected at the existing intersections and the locations for the proposed access driveways on Rogers Bridge Road and Bell Road. **Figure 3** illustrates the existing 2013 peak hour traffic volumes.

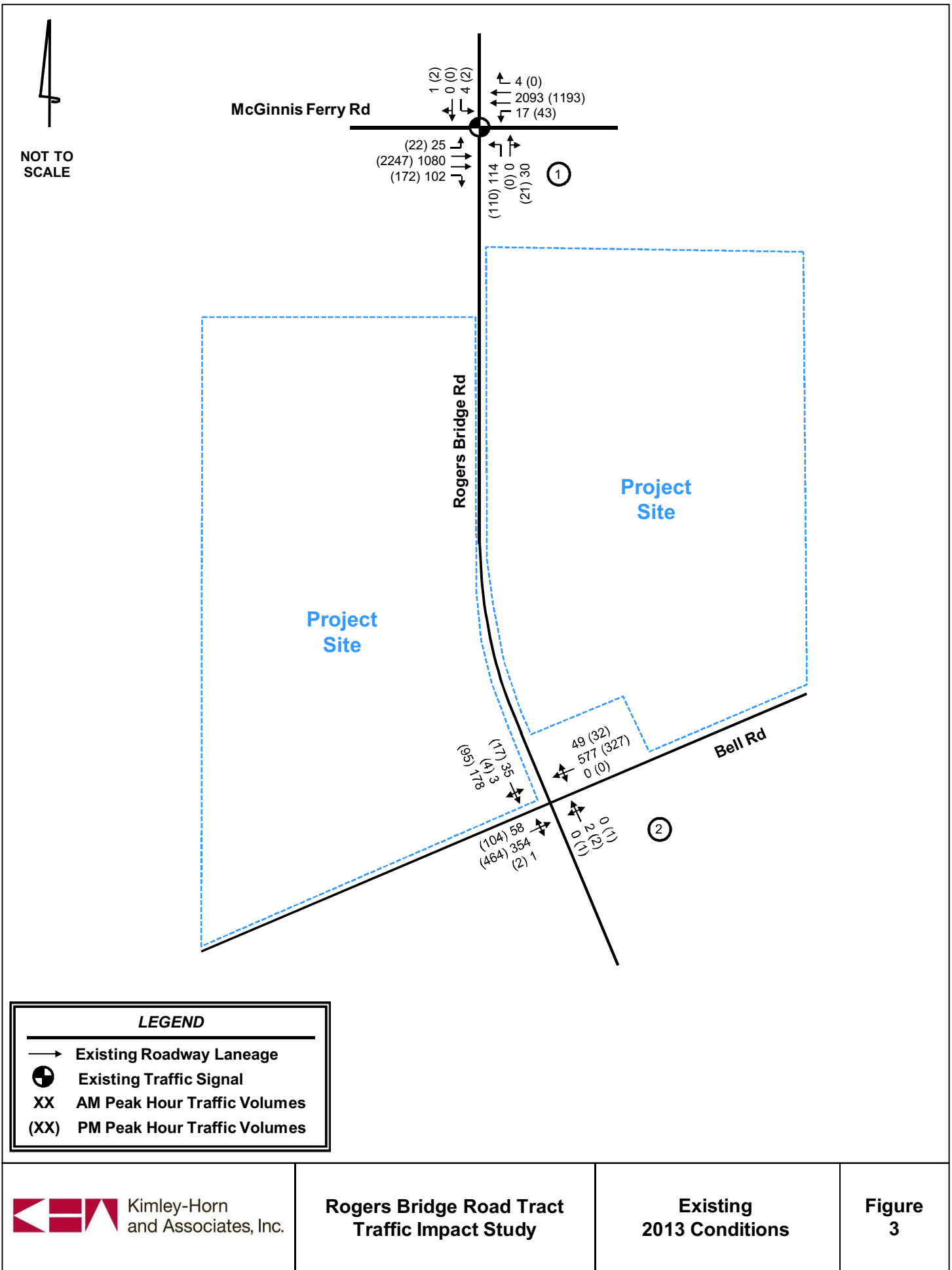
4.0 PROJECTED BACKGROUND (NON-PROJECT) TRAFFIC

Projected background (non-project) traffic is defined as expected traffic on the roadway network in the future year(s) absent the construction and opening of the proposed project. The existing 2013 peak hour traffic volumes were increased at 1% per year for seven years to account for the expected background growth in traffic through 2020. Further, traffic associated with two additional planned developments was considered in the analysis: the approved McGinnis Ferry Road Tract (in the southeast corner of McGinnis Ferry Road and Bell Road) as well as another planned residential development in the northeast corner of McGinnis Ferry Road and Rogers Bridge Road (in Forsyth County). The Forsyth County development of approximately 101 single-family homes is currently under construction and connects into the intersection of Rogers Bridge Road and McGinnis Ferry Road. **Figure 4** illustrates the projected 2020 no-build traffic volumes (which does not include traffic associated with the proposed Rogers Bridge Road Tract).

4.1 Future Roadway/Intersection Projects

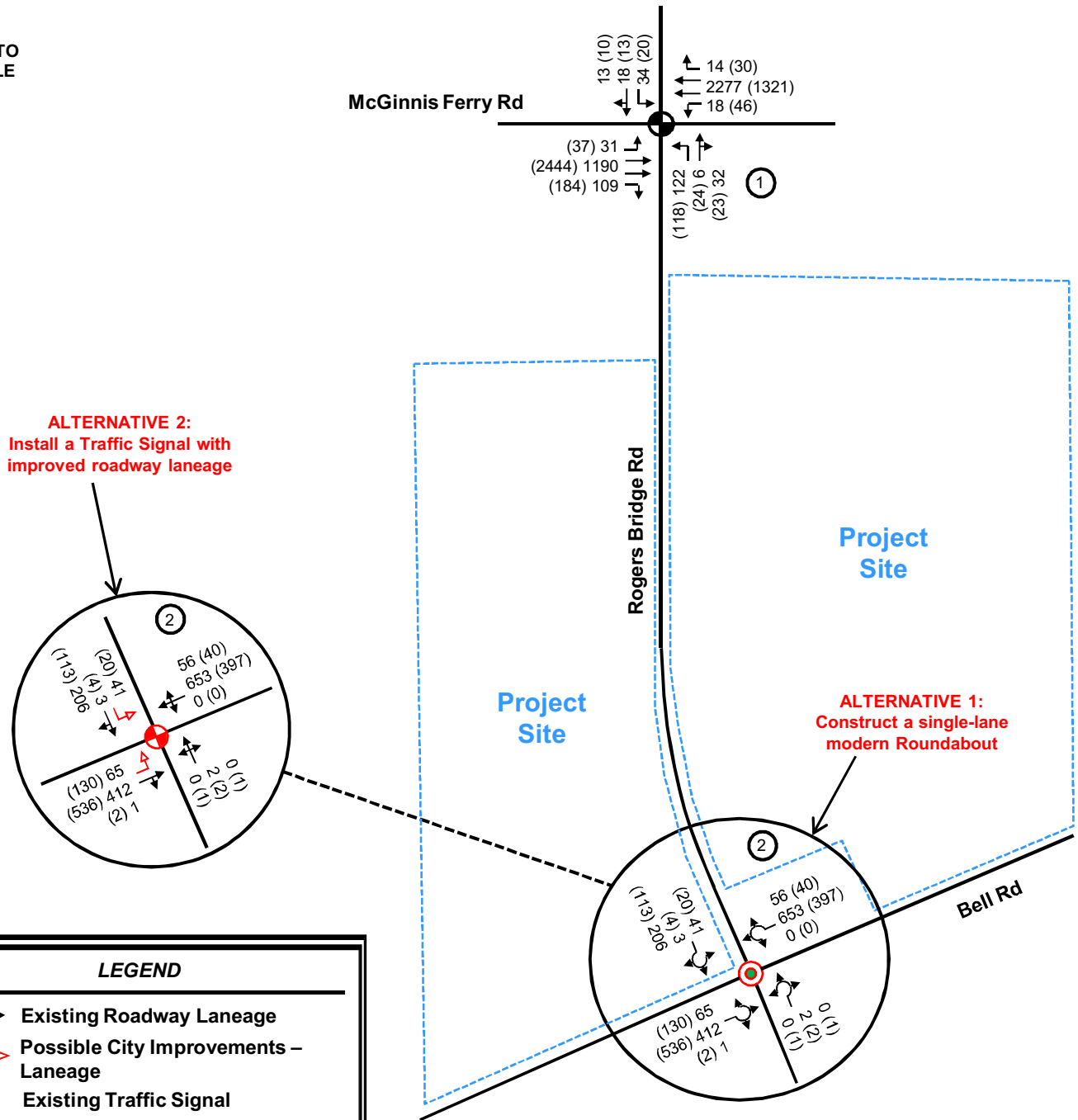
The ARC's *Plan 2040* Regional Transportation Plan (RTP) and the Johns Creek Transportation Master Plan were researched for currently programmed transportation projects within the vicinity of the proposed development. Six projects were identified:

1. **The Johns Creek Transportation Master Plan** proposes a long-term improvement at the intersection of Bell Road and Rogers Bridge Road.





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Traffic Impact Study

Projected 2020
No-Build Conditions

Figure
4

2. **The Johns Creek Transportation Master Plan** also proposes geometric improvements along Bell Road near Rogers Circle. This would provide turn lanes and improve the skew angle at the northern intersection with Rogers Circle and improve sight distance at the southern intersection with Rogers Circle.
3. **Plan 2040 project FN-238** involves constructing a three-leg single lane roundabout to replace the existing T-intersection of Bell Road and Boles Road.
4. **Plan 2040 project FN-251** is a bridge upgrade project along Bell Road at Cauley Creek, southwest of Rogers Bridge Road.
5. **Plan 2040 project ASP-FT-327** is a road widening of McGinnis Ferry Road from four to six lanes, starting at Brookwood Road and ending at Peachtree Industrial Boulevard. It is currently an aspired project and does not have an anticipated build-out year.
6. **Plan 2040 project FT-328** consists of traffic signal cabinet upgrades at fifteen locations on McGinnis Ferry Road and McFarland Boulevard. The project will install battery back-ups, countdown pedestrian heads, and upgrade conflict monitors for these locations by an anticipated network year of 2015.

Fact sheets for the above mentioned *Plan 2040* projects as well as portions of the Johns Creek Transportation Master Plan are included in **Appendix F**.

5.0 PROJECT TRAFFIC

Project traffic used in this analysis is defined as the vehicle trips expected to be generated by the development and the distribution and assignment of that traffic over the study roadway network. This traffic impact study evaluated the impacts of developing 273 single-family homes.

5.1 Project Site Access

Access to the proposed Rogers Bridge Road Tract residential development will be provided at four (4) proposed locations, all of which can be seen in the site plan in Appendix A. A brief description of each proposed access point follows:

1. Site Driveway #1 (Intersection #3) – a proposed full-movement driveway located on the east side of Rogers Bridge Road, approximately 2,000 feet north of Bell Road (or approximately 2,800 feet south of McGinnis Ferry Road).
2. Site Driveway #2 (Intersection #4) – a proposed full-movement driveway located on both sides of Rogers Bridge Road, approximately 600 feet south of Site Driveway #1.
3. Site Driveway #3 (Intersection #5) – a proposed full-movement driveway located on the west side of Rogers Bridge Road, approximately 700 feet north of Bell Road.
4. Site Driveway #4 (Intersection #6) – a proposed full-movement driveway located on the north side of Bell Road, approximately 1,000 feet west of Rogers Bridge Road.

5.2 Trip Generation

Traffic for the project was calculated using equations contained in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, Ninth Edition, 2012. **Table 1** summarizes the trip generation for the proposed development on a full build-out (year 2020). A detailed trip generation analysis is provided in **Appendix C**.

Table 1 Rogers Bridge Road Tract Project Trip Generation							
Land Use	ITE Code	Daily Traffic		AM Peak Hour		PM Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
273 Single-Family Homes	210	1,323	1,323	50	151	163	96
Total New Trips		1,323	1,323	50	151	163	96

5.3 *Trip Distribution and Assignment*

The directional distribution and assignment of new project trips was based on a review of land uses and population densities in the area as well as the existing peak hour turning movement counts at the two study intersections and at the entrance to the Amberleigh subdivision along Rogers Bridge Road. The directional distribution for the proposed development during the AM and PM peak hours is anticipated to be as follows:

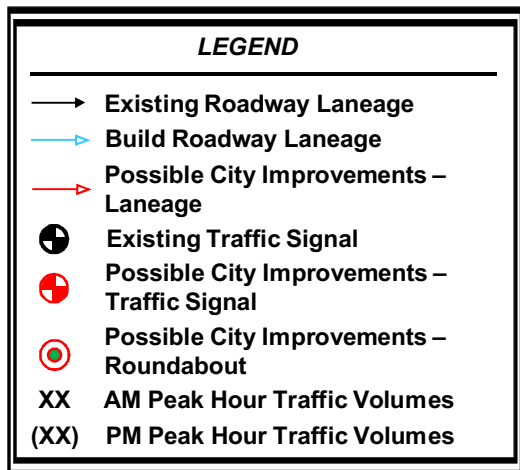
AM Peak Hour:

- 45% to and from the north along Rogers Bridge Road
- 55% to and from the south along Rogers Bridge Road

PM Peak Hour:

- 60% to and from the north along Rogers Bridge Road
- 40% to and from the south along Rogers Bridge Road

Based on the trip generation from Table 1 and the anticipated trip distribution, new project trips were assigned to the study roadway network. Trips were distributed to and from the site driveways according to the proportion of lots near a particular driveway, as per the site plan in Appendix A. **Figure 5** illustrates the projected 2020 build-out traffic conditions, including new intersection laneage, for the AM and PM peak hours. **Appendix D** provides intersection volume worksheets for all intersections and driveways within the study network.



6.0 LEVEL-OF-SERVICE ANALYSIS

Level-of-service determinations were made for the weekday AM and PM peak hours for the existing study network intersections and proposed access intersections using *Synchro Professional, Version 8.0*. The program uses methodologies contained in the *2000 Highway Capacity Manual* to determine the operating characteristics of an intersection. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a specified period under prevailing roadway, traffic, and control conditions.

Level-of-service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions of a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F the worst.

For the purposes of this traffic impact study, a level-of-service standard of D was assumed for all intersections within the study network. This assumption is consistent with local and state agency review standards for the study area.

Levels-of-service for unsignalized intersections, with stop control on the minor street(s) only, are reported for the side street approaches. Low levels-of-service for the side street approaches are not uncommon, as vehicles may experience a delay turning onto a major roadway.

Levels-of-service for signalized intersections are reported for the intersection as a whole. One or more movements at an intersection may experience a low level-of-service, while the intersection as a whole may operate acceptably.

In addition to the existing 2013 traffic conditions, an analysis was performed for the AM and PM peak hours for the projected 2020 no-build traffic conditions (background traffic growth), the projected 2020 build conditions (background traffic growth plus the proposed development traffic), and projected 2020 build conditions with City of Johns Creek improvements. The results of the LOS analysis are summarized in **Table 2** and **Table 3** below. A more complete set of the analyses from *Synchro* is available in **Appendix G**.

Table 2 Rogers Bridge Road Tract Level-of-Service Summary LOS (Delay in Seconds)							
Intersection	Control	2013 Existing		Projected 2020 No-Build		Projected 2020 Build	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. Rogers Bridge Rd. @ McGinnis Ferry	Signal	C (25.3)	D (43.0)	C (32.2)	E (64.9)	C (32.2)	E (73.0)
2. Rogers Bridge Rd. @ Bell Rd.	SB Stop NB Stop	E (38.6) D (27.2)	C (16.5) C (24.2)	F (94.0) D (33.9)	C (22.4) D (33.6)	F (265) E (37.1)	D (32.9) E (41.6)
3. Rogers Bridge Rd. @ Site Dwy. #1	WB Stop	-	-	-	-	B (11.0)	B (10.8)
4. Rogers Bridge Rd. @ Site Dwy. #2	EB Stop WB Stop	-	-	-	-	B (11.6) B (11.9)	B (12.2) B (11.2)
5. Rogers Bridge Rd. @ Site Dwy. #3	EB Stop	-	-	-	-	B (11.8)	B (11.1)
6. Bell Rd. @ Site Dwy. #4	SB Stop	-	-	-	-	D (26.9)	C (18.2)

Table 3 Rogers Bridge Road Tract Level-of-Service Summary - Projected 2020 Conditions with Possible City Improvements LOS (Delay in Seconds)					
Intersection	Control	Projected 2020 No-Build		Projected 2020 Build	
		AM Peak	PM Peak	AM Peak	PM Peak
2. Rogers Bridge Rd. @ Bell Rd.	Roundabout	B (14.9)	B (11.2)	C (17.5)	B (12.6)
	Signal with Turn Lanes	B (13.0)	B (11.5)	B (14.0)	B (12.0)

Analyses indicate that Rogers Bridge Road at McGinnis Ferry Road currently operates at LOS C and LOS D during the AM and PM peak, respectively. The intersection is expected to operate at LOS E in the projected 2020 no-build scenario (which accounts for background growth and other proposed developments but does not include traffic associated with the proposed Rogers Bridge Road Tract). The intersection is expected to stay within the LOS E threshold in the projected 2020 build scenario.

The intersection of Rogers Bridge Road and Bell Road currently operates at LOS E and LOS C during the AM and PM peak, respectively. During the projected 2020 no-build and build scenarios, the southbound approach is expected to operate at LOS F. Intersection improvements will become necessary even without the traffic associated with the proposed Rogers Bridge Road Tract. As per the Johns Creek Transportation Master Plan, a long term improvement is proposed at this intersection. For the purposes of these analyses, two alternatives were considered and analyzed: a single-lane modern roundabout (Alternative #1) and a traffic signal with improved roadway laneage (Alternative #2). As indicated in Table 3, both of these improvements result in the Rogers Bridge Road at Bell Road intersection operating at or above the level-of-service standard (LOS D) in the projected 2020 no-build and build conditions.

The four (4) site driveways are all expected to operate at or above the level of service standard (LOS D) during the projected 2020 build scenario.

7.0 CONCLUSION

The Rogers Bridge Road Tract residential development will consist of approximately 273 single-family homes. The approximate 105-acre site is located on both sides of Rogers Bridge Road, north of Bell Road and south of McGinnis Ferry Road in the City of Johns Creek, Georgia. The proposed development is planned to be completed (built-out) by year 2020. At build-out of the development, access to the site is proposed at three (3) full-movement driveways along Rogers Bridge Road and one along Bell Road, approximately 1,000 feet west of Rogers Bridge Road. The study network, composed of two existing intersections and four additional proposed intersections, was analyzed for 2013 conditions, projected 2020 no-build conditions, and projected 2020 build conditions.

7.1 *General Recommendations*

Based on the results of this study in the full build-out condition, Kimley-Horn and Associates, Inc. recommends the following:

- In accordance with the Johns Creek Transportation Master Plan, capacity improvements at the intersection of Rogers Bridge Road and Bell Road should be considered. A single-lane modern roundabout would provide these capacity improvements, as would a traffic signal, when warranted. If a traffic signal is considered, a left-turn lane should be provided for the eastbound approach along Bell Road as well as the southbound approach along Rogers Bridge Road.
- Construct a northbound right-turn lane along Rogers Bridge Road at Site Driveway #2.

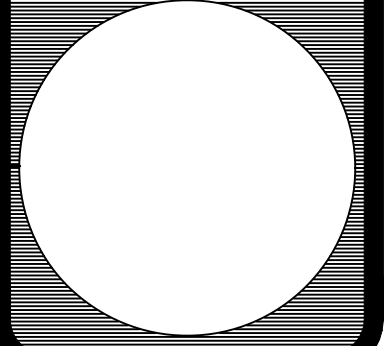
Appendix

Appendix A

Site Plan

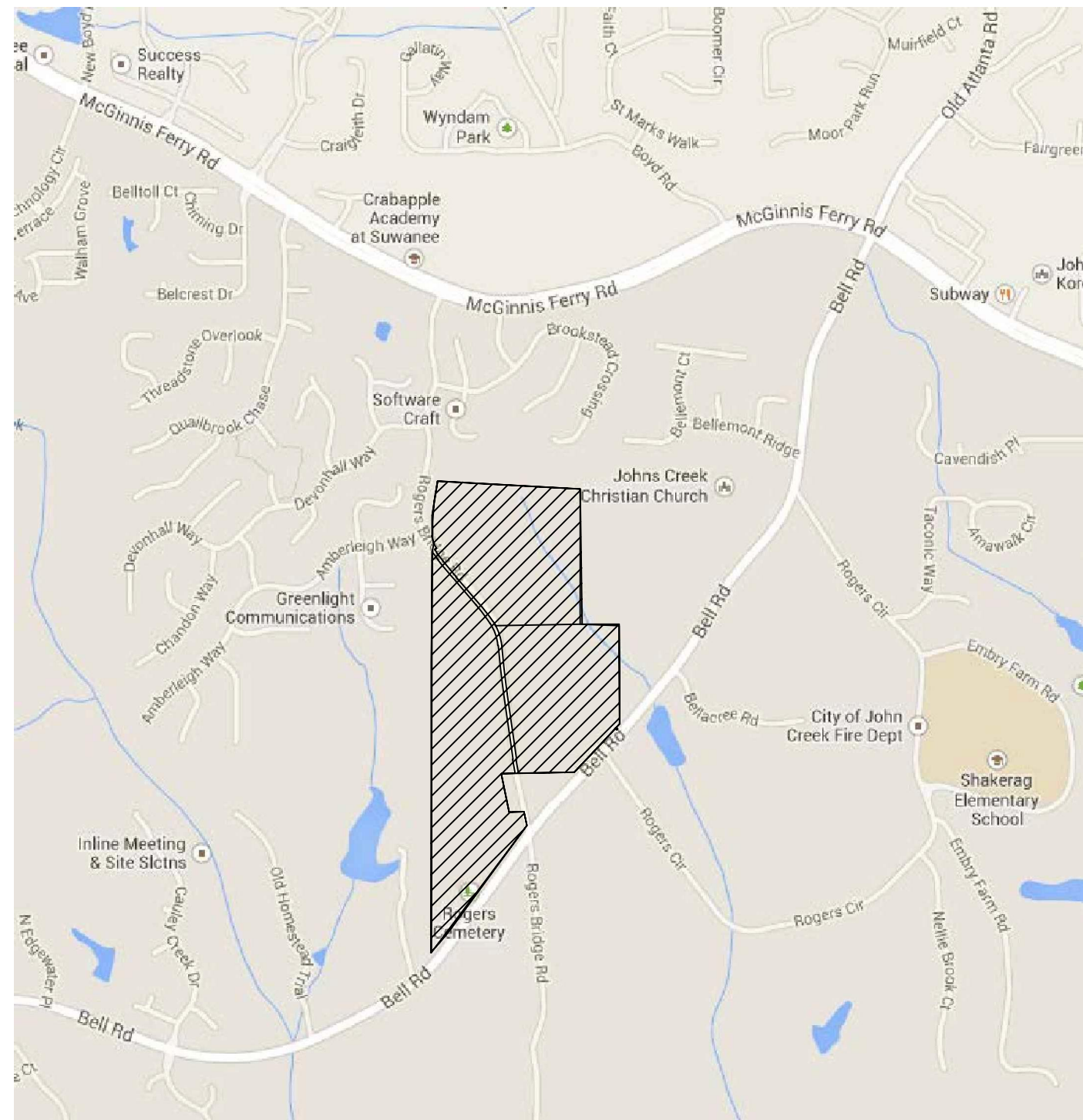
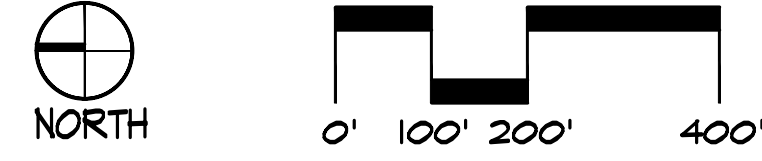
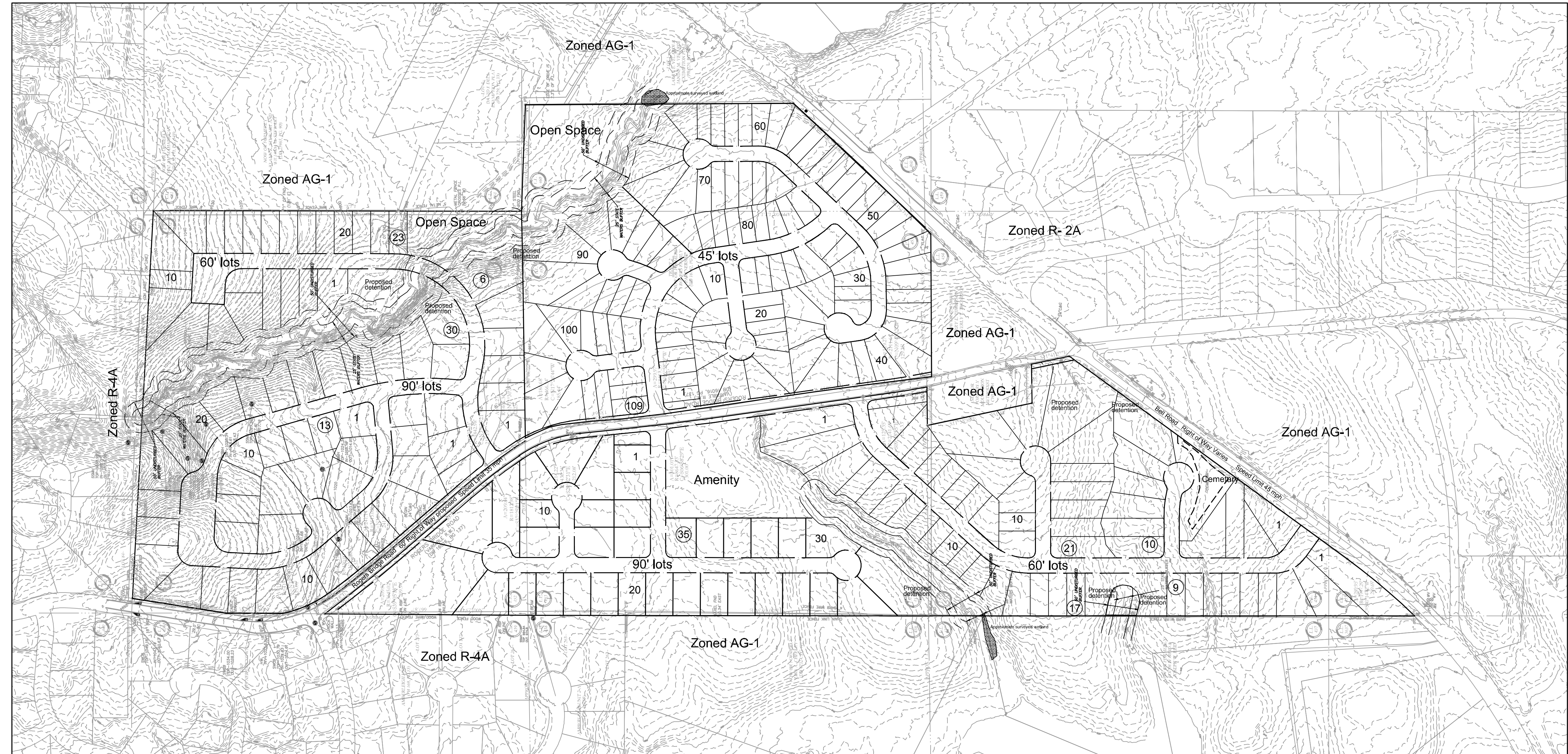
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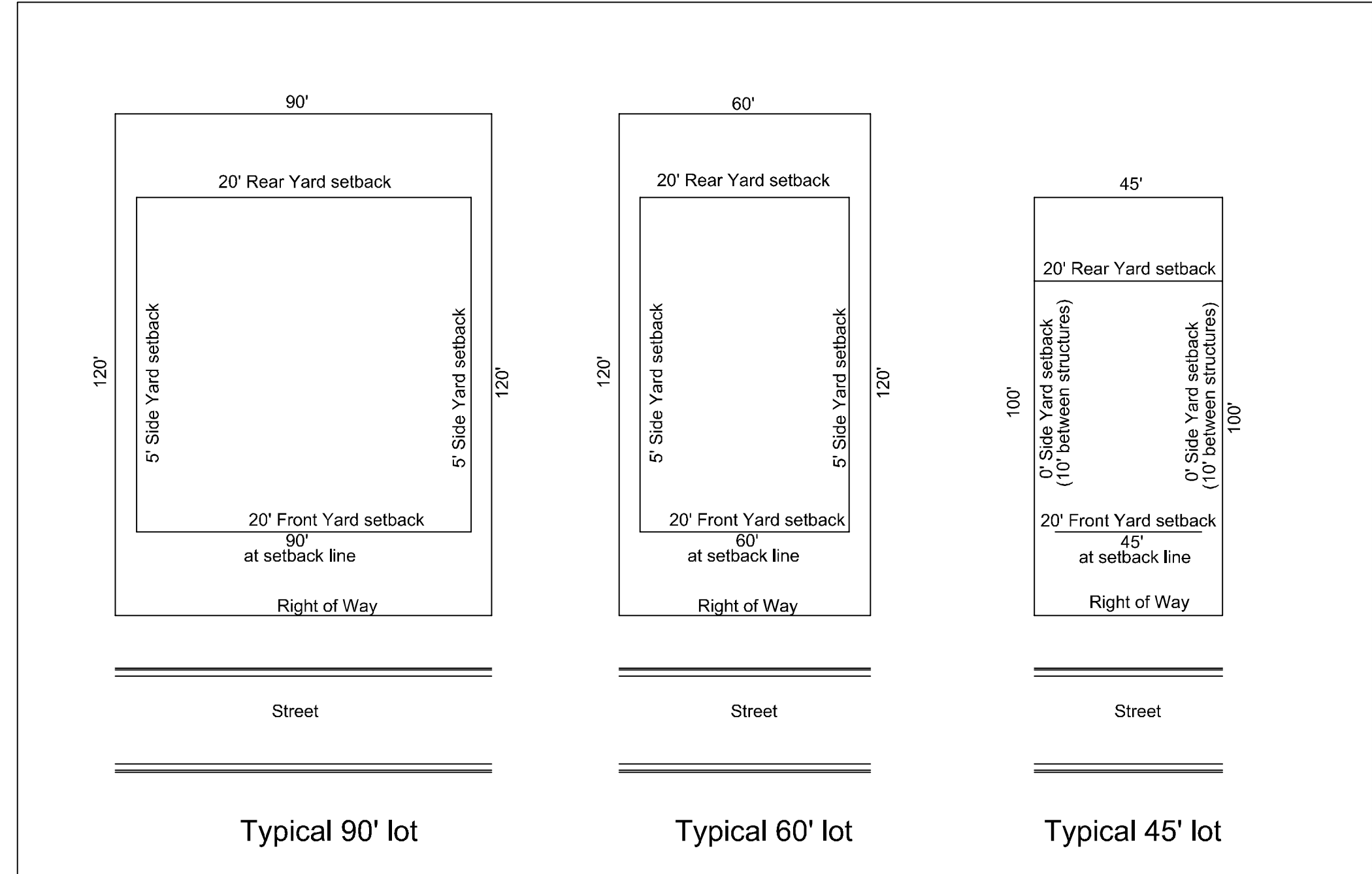


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Site Location Map



Typical Lot Layout

Lot Count

90' lots	84
60' lots	80
45' lots	109

273 lots total= 2.60 units per acre

Acreage: 104.38 Acres

Open space: Required: 150,150 s.f. (3.45 AC.)
Provided: 403,350 s.f. (9.25 AC.)

Existing zoning: AG-1
Proposed zoning: CUP

Appendix B
Site Photographs

Site Name: Proposed Rogers Bridge Road Tract

Photo No. 1



Comments: Looking at the northbound approach of the Rogers Bridge Road at McGinnis Ferry Road intersection.

Photo No. 2



Comments: Looking at the westbound approach of the Rogers Bridge Road at McGinnis Ferry Road intersection.

Site Name: Proposed Rogers Bridge Road Tract

Photo No. 3



Comments: Looking at the southbound approach (other development under construction) of the Rogers Bridge Road / Settles Walk Ln at McGinnis Ferry Road intersection.

Photo No. 4



Comments: Looking at the southbound approach of the Rogers Bridge Road at Bell Road intersection.

Site Name: Proposed Rogers Bridge Road Tract

Photo No. 5



Comments: Looking at the northbound approach of the Rogers Bridge Road at Bell Road intersection.

Photo No. 6



Comments: Looking at the eastbound approach of the Rogers Bridge Road at Bell Road intersection.

Site Name: Proposed Rogers Bridge Road Tract

Photo No. 7



Comments: From Proposed Site Driveway #1, looking to the north along Rogers Bridge Road.

Photo No. 8



Comments: From Proposed Site Driveway #1, looking to the south along Rogers Bridge Road.

Site Name: Proposed Rogers Bridge Road Tract

Photo No. 9



Comments: From Proposed Site Driveway #2 (east of Rogers Bridge Road), looking to the north along Rogers Bridge Road.

Photo No. 10



Comments: From Proposed Site Driveway #2 (east of Rogers Bridge Road), looking to the south along Rogers Bridge Road.

Site Name: Proposed Rogers Bridge Road Tract

Photo No. 11



Comments: From Proposed Site Driveway #2 (west of Rogers Bridge Road), looking to the north along Rogers Bridge Road.

Photo No. 12



Comments: From Proposed Site Driveway #2 (west of Rogers Bridge Road), looking to the south along Rogers Bridge Road.

Site Name: Proposed Rogers Bridge Road Tract

Photo No. 13



Comments: From Proposed Site Driveway #3, looking to the north along Rogers Bridge Road.

Photo No. 14



Comments: From Proposed Site Driveway #3, looking to the south along Rogers Bridge Road.

Site Name: Proposed Rogers Bridge Road Tract

Photo No. 15



Comments: From Proposed Site Driveway #4, looking to the east along Bell Road.

Photo No. 16



Comments: From Proposed Site Driveway #4, looking to the west along Bell Road.

Appendix C

Trip Generation Analysis

Trip Generation Analysis (9th Ed.) Rogers Bridge Road Tract Johns Creek, Georgia								
Land Use	Intensity	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Proposed Site Traffic								
210 Single-Family Detached Housing	273 d.u.	2,646	201	50	151	259	163	96
Gross Trips		2,646	201	50	151	259	163	96
Residential Trips		2,646	201	50	151	259	163	96
<i>Mixed-Use Reductions</i>		0				0	0	0
<i>Alternative Mode Reductions</i>		0	0	0	0	0	0	0
Adjusted Residential Trips		2,646	201	50	151	259	163	96
<i>Mixed-Use Reductions - TOTAL</i>		0	0	0	0	0	0	0
<i>Alternative Mode Reductions - TOTAL</i>		0	0	0	0	0	0	0
<i>Pass-By Reductions - TOTAL</i>		0	0	0	0	0	0	0
New Trips		2,646	201	50	151	259	163	96
Driveway Volumes		2,646	201	50	151	259	163	96

k:\atl_tpto\019967000 rogers bridge traffic study\analysis\[rogers bridge road analysis.xls]trip generation

Appendix D
Intersection Volume Worksheets

INTERSECTION VOLUME DEVELOPMENT

Rogers Bridge Road at McGinnis Ferry Road AM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Settles Walk Lane <u>Southbound</u>			McGinnis Ferry Road <u>Eastbound</u>			McGinnis Ferry Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 AM Volumes	114	0	30	4	0	1	25	1,080	102	17	2,093	4
Pedestrians	1			0			0			0		
Conflicting Pedestrians	0		0	0		0	0		1	1		0
Heavy Vehicles												
Heavy Vehicle %	1%	0%	0%	0%	0%	0%	0%	1%	1%	0%	1%	0%
Peak Hour Factor	0.80			0.31*			0.97			0.93		
Adjustment												
Adjusted 2013 Volumes	114	0	30	4	0	1	25	1080	102	17	2093	4
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract								32			33	
Other Proposed Developments		6		30	18	12	4					10
2020 Background Traffic	122	6	32	34	18	13	31	1,190	109	18	2,277	14
Project Trips												
Trip Distribution IN					1%				24%	20%		
Trip Distribution OUT	24%	1%	20%									
Residential Trips	36	2	30	0	1	0	0	0	12	10	0	0
Total Project Trips	36	2	30	0	1	0	0	0	12	10	0	0
2020 Buildout Total	158	8	62	34	19	13	31	1,190	121	28	2,277	14

*Assume PHF = 0.80 for 2020 No Build and Buildout

PM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Settles Walk Lane <u>Southbound</u>			McGinnis Ferry Road <u>Eastbound</u>			McGinnis Ferry Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 PM Volumes	110	0	21	2	0	2	22	2,247	172	43	1,193	0
Pedestrians	2			0			0			0		
Conflicting Pedestrians	0		0	0		0	0		2	2		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	100%	0%	1%	0%	0%	0%	0%
Peak Hour Factor	0.84			0.50*			0.81			0.74		
Adjustment												
Adjusted 2013 Volumes	110	0	21	2	0	2	22	2247	172	43	1193	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract								35			42	
Other Proposed Developments		24		18	13	8	13					30
2020 Background Traffic	118	24	23	20	13	10	37	2,444	184	46	1,321	30
Project Trips												
Trip Distribution IN					1%				39%	20%		
Trip Distribution OUT	39%	1%	20%									
Residential Trips	37	1	19	0	2	0	0	0	64	33	0	0
Total Project Trips	37	1	19	0	2	0	0	0	64	33	0	0
2020 Buildout Total	155	25	42	20	15	10	37	2,444	248	79	1,321	30

*Assume PHF = 0.80 for 2020 No Build and Buildout

INTERSECTION VOLUME DEVELOPMENT

Rogers Bridge Road at Bell Road AM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Rogers Bridge Road <u>Southbound</u>			Bell Road <u>Eastbound</u>			Bell Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 AM Volumes	0	2	0	35	3	178	58	354	1	0	577	49
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Peak Hour Factor	0.50			0.89			0.89			0.90		
Adjustment												
Adjusted 2013 Volumes	0	2	0	35	3	178	58	354	1	0	577	49
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract								32			34	
Other Proposed Developments				3		15	3					3
2020 Background Traffic	0	2	0	41	3	206	65	412	1	0	653	56
Project Trips												
Trip Distribution IN						1%	28%				4%	17%
Trip Distribution OUT				17%		28%	1%	4%				
Residential Trips	0	0	0	26	0	43	16	6	0	0	2	9
Total Project Trips	0	0	0	26	0	43	16	6	0	0	2	9
2020 Buildout Total	0	2	0	67	3	249	81	418	1	0	655	65

PM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Rogers Bridge Road <u>Southbound</u>			Bell Road <u>Eastbound</u>			Bell Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 PM Volumes	1	2	1	17	4	95	104	464	2	0	327	32
Pedestrians	0			0			0			0		
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.50			0.97			0.96			0.85		
Adjustment												
Adjusted 2013 Volumes	1	2	1	17	4	95	104	464	2	0	327	32
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract								39			46	
Other Proposed Developments				2		11	18					6
2020 Background Traffic	1	2	1	20	4	113	130	536	2	0	397	40
Project Trips												
Trip Distribution IN						1%	24%				2%	8%
Trip Distribution OUT				8%		24%	1%	2%				
Residential Trips	0	0	0	8	0	25	40	2	0	0	3	13
Total Project Trips	0	0	0	8	0	25	40	2	0	0	3	13
2020 Buildout Total	1	2	1	28	4	138	170	538	2	0	400	53

INTERSECTION VOLUME DEVELOPMENT

Rogers Bridge Road at Site Driveway #1 AM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Rogers Bridge Road <u>Southbound</u>			N / A <u>Eastbound</u>			Site Driveway #1 <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 AM Volumes		109			216							
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor		0.92			0.92						0.92	
Adjustment												
Adjusted 2013 Volumes	0	109	0	0	216	0	0	0	0	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract												
Other Proposed Developments		6			18							
2020 Background Traffic	0	123	0	0	250	0	0	0	0	0	0	0
Project Trips												
Trip Distribution IN			14%	12%	33%							
Trip Distribution OUT		33%								14%		12%
Residential Trips	0	50	7	6	17	0	0	0	0	21	0	18
Total Project Trips	0	50	7	6	17	0	0	0	0	21	0	18
2020 Buildout Total	0	173	7	6	267	0	0	0	0	21	0	18

PM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Rogers Bridge Road <u>Southbound</u>			N / A <u>Eastbound</u>			Site Driveway #1 <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 PM Volumes		138			116							
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor		0.92			0.92						0.92	
Adjustment												
Adjusted 2013 Volumes	0	138	0	0	116	0	0	0	0	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract												
Other Proposed Developments		24			13							
2020 Background Traffic	0	172	0	0	137	0	0	0	0	0	0	0
Project Trips												
Trip Distribution IN			10%	16%	44%							
Trip Distribution OUT		44%								10%		16%
Residential Trips	0	42	16	26	72	0	0	0	0	10	0	15
Total Project Trips	0	42	16	26	72	0	0	0	0	10	0	15
2020 Buildout Total	0	214	16	26	209	0	0	0	0	10	0	15

INTERSECTION VOLUME DEVELOPMENT

Rogers Bridge Road at Site Driveway #2 AM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Rogers Bridge Road <u>Southbound</u>			Site Driveway #2 <u>Eastbound</u>			Site Driveway #2 <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 AM Volumes		109			216							
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor		0.92			0.92			0.92			0.92	
Adjustment												
Adjusted 2013 Volumes	0	109	0	0	216	0	0	0	0	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract												
Other Proposed Developments		6			18							
2020 Background Traffic	0	123	0	0	250	0	0	0	0	0	0	0
Project Trips												
Trip Distribution IN	7%	14%	22%	17%	10%	6%		1%				
Trip Distribution OUT		10%			14%		6%		7%	22%	1%	17%
Residential Trips	4	22	11	9	26	3	9	1	11	33	2	26
Total Project Trips	4	22	11	9	26	3	9	1	11	33	2	26
2020 Buildout Total	4	145	11	9	276	3	9	1	11	33	2	26

PM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Rogers Bridge Road <u>Southbound</u>			Site Driveway #2 <u>Eastbound</u>			Site Driveway #2 <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 PM Volumes		138			116							
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor		0.92			0.92			0.92			0.92	
Adjustment												
Adjusted 2013 Volumes	0	138	0	0	116	0	0	0	0	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract												
Other Proposed Developments		24			13							
2020 Background Traffic	0	172	0	0	137	0	0	0	0	0	0	0
Project Trips												
Trip Distribution IN	5%	10%	15%	24%	12%	8%		1%				
Trip Distribution OUT		12%			10%		8%		5%	15%	1%	24%
Residential Trips	8	28	24	39	30	13	8	2	5	14	1	23
Total Project Trips	8	28	24	39	30	13	8	2	5	14	1	23
2020 Buildout Total	8	200	24	39	167	13	8	2	5	14	1	23

INTERSECTION VOLUME DEVELOPMENT

Rogers Bridge Road at Site Driveway #3 AM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Rogers Bridge Road <u>Southbound</u>			Site Driveway #3 <u>Eastbound</u>			N / A <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 AM Volumes		109			216							
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor		0.92			0.92			0.92				
Adjustment												
Adjusted 2013 Volumes	0	109	0	0	216	0	0	0	0	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract												
Other Proposed Developments		6			18							
2020 Background Traffic	0	123	0	0	250	0	0	0	0	0	0	0
Project Trips												
Trip Distribution IN	2%	43%			1%	9%						
Trip Distribution OUT		1%			43%		9%		2%			
Residential Trips	1	24	0	0	66	5	14	0	3	0	0	0
Total Project Trips	1	24	0	0	66	5	14	0	3	0	0	0
2020 Buildout Total	1	147	0	0	316	5	14	0	3	0	0	0

PM PEAK HOUR

Description	Rogers Bridge Road <u>Northbound</u>			Rogers Bridge Road <u>Southbound</u>			Site Driveway #3 <u>Eastbound</u>			N / A <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 PM Volumes		138			116							
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor		0.92			0.92			0.92				
Adjustment												
Adjusted 2013 Volumes	0	138	0	0	116	0	0	0	0	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract												
Other Proposed Developments		24			13							
2020 Background Traffic	0	172	0	0	137	0	0	0	0	0	0	0
Project Trips												
Trip Distribution IN	2%	30%			1%	11%						
Trip Distribution OUT		1%			30%		11%		2%			
Residential Trips	3	50	0	0	31	18	11	0	2	0	0	0
Total Project Trips	3	50	0	0	31	18	11	0	2	0	0	0
2020 Buildout Total	3	222	0	0	168	18	11	0	2	0	0	0

INTERSECTION VOLUME DEVELOPMENT

Bell Road at Site Driveway #4 AM PEAK HOUR

Description	N / A <u>Northbound</u>			Site Driveway #4 <u>Southbound</u>			Bell Road <u>Eastbound</u>			Bell Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 AM Volumes								413			755	
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor					0.92			0.92			0.92	
Adjustment												
Adjusted 2013 Volumes	0	0	0	0	0	0	0	413	0	0	755	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract								32			34	
Other Proposed Developments								3			15	
2020 Background Traffic	0	0	0	0	0	0	0	478	0	0	858	0
Project Trips												
Trip Distribution IN							5%	28%				5%
Trip Distribution OUT				5%		5%					28%	
Residential Trips	0	0	0	8	0	8	3	14	0	0	42	3
Total Project Trips	0	0	0	8	0	8	3	14	0	0	42	3
2020 Buildout Total	0	0	0	8	0	8	3	492	0	0	900	3

PM PEAK HOUR

Description	N / A <u>Northbound</u>			Site Driveway #4 <u>Southbound</u>			Bell Road <u>Eastbound</u>			Bell Road <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed 2013 PM Volumes								570			423	
Pedestrians												
Conflicting Pedestrians	0		0	0		0	0		0	0		0
Heavy Vehicles												
Heavy Vehicle %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor					0.92			0.92			0.92	
Adjustment												
Adjusted 2013 Volumes	0	0	0	0	0	0	0	570	0	0	423	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072	1.072
McGinnis Ferry Road Tract								39			46	
Other Proposed Developments								18			11	
2020 Background Traffic	0	0	0	0	0	0	0	668	0	0	511	0
Project Trips												
Trip Distribution IN							5%	24%				3%
Trip Distribution OUT				3%		5%					24%	
Residential Trips	0	0	0	3	0	5	8	39	0	0	23	5
Total Project Trips	0	0	0	3	0	5	8	39	0	0	23	5
2020 Buildout Total	0	0	0	3	0	5	8	707	0	0	534	5

Appendix E

Peak Hour Turning Movement Counts

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

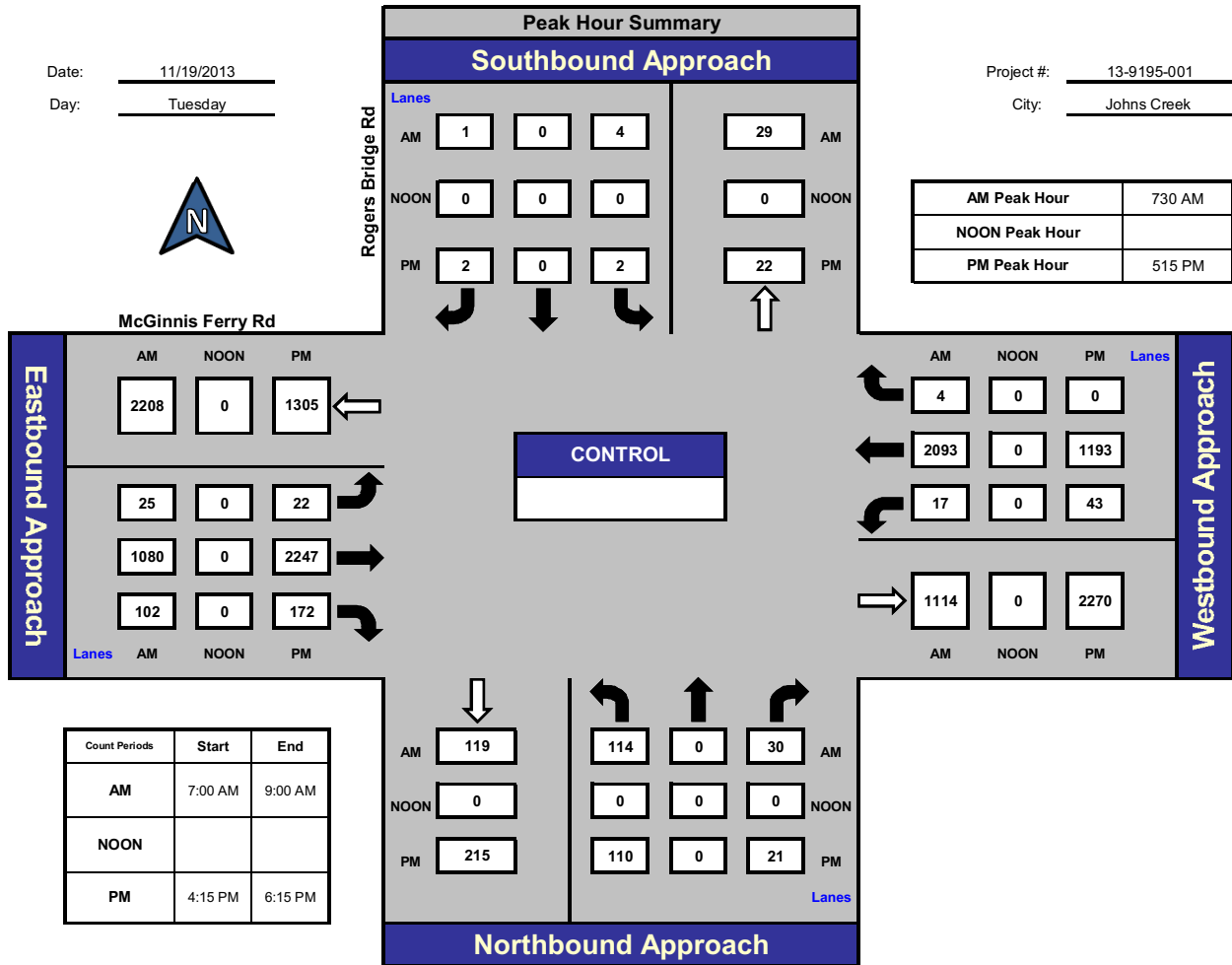
Rogers Bridge Rd and McGinnis Ferry Rd, Johns Creek

Date: 11/19/2013

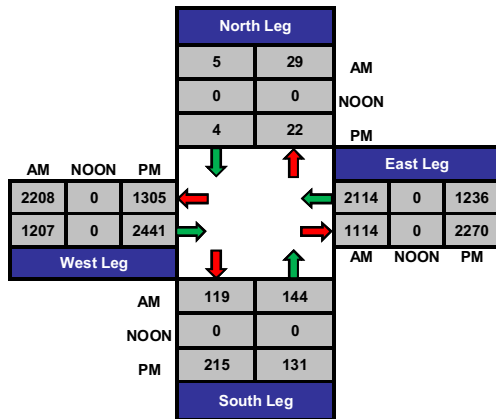
Day: Tuesday

Project #: 13-9195-001

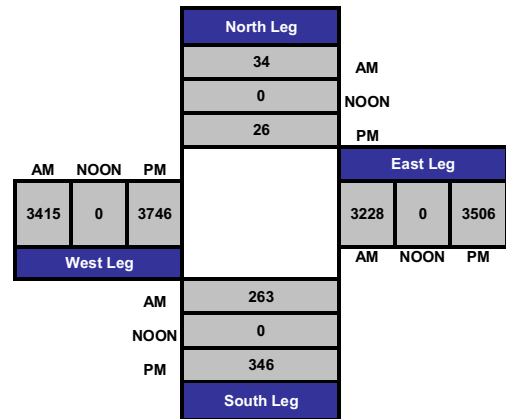
City: Johns Creek



Total Ins & Outs



Total Volume Per Leg



DAY: Tuesday

[illegible]

Project ID: 13-9195-001

Location: Rogers Bridge Rd & McGinnis Ferry Rd

City: Johns Creek

Day: Tuesday
Date: 11/19/2013**Peak Start Times**

AM	7:00 AM
MD	12:00 AM
PM	4:15 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Rogers Bridge Rd Northbound					Rogers Bridge Rd Southbound					McGinnis Ferry Rd Eastbound					McGinnis Ferry Rd Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	17	0	6	0	23	0	0	0	0	0	3	184	20	0	207	3	535	0	1	538	768
7:15 AM	20	0	5	1	25	1	0	0	0	1	2	249	16	0	267	5	562	1	0	568	861
7:30 AM	36	0	9	0	45	0	0	0	0	0	10	271	22	0	303	3	483	1	0	487	835
7:45 AM	25	0	5	0	30	1	0	0	0	1	1	278	31	0	310	3	542	1	0	546	887
Total	98	0	25	1	123	2	0	0	0	2	16	982	89	0	1087	14	2122	3	1	2139	3351
8:00 AM	27	0	8	0	35	0	0	0	1	0	8	273	29	0	310	6	506	0	0	512	857
8:15 AM	26	0	8	0	34	3	0	1	0	4	6	258	20	0	284	5	562	2	0	569	891
8:30 AM	17	0	7	0	24	0	0	0	0	0	4	189	11	0	204	5	547	0	0	552	780
8:45 AM	18	0	3	0	21	1	0	0	0	1	5	172	11	0	188	4	477	0	0	481	691
Total	88	0	26	0	114	4	0	1	1	5	23	892	71	0	986	20	2092	2	0	2114	3219
BREAK																					
4:15 PM	25	0	1	0	26	2	0	0	0	2	4	500	21	0	525	6	206	1	0	213	766
4:30 PM	20	0	3	0	23	1	0	1	0	2	5	550	26	0	581	8	243	2	0	253	859
4:45 PM	15	0	4	0	19	2	0	0	1	2	5	510	30	0	545	7	237	0	0	244	810
5:00 PM	30	0	2	0	32	1	0	1	0	2	9	625	34	0	668	7	264	0	0	271	973
Total	90	0	10	0	100	6	0	2	1	8	23	2185	111	0	2319	28	950	3	0	981	3408
5:15 PM	32	0	7	0	39	0	0	1	2	1	4	560	40	0	604	12	277	0	0	289	933
5:30 PM	30	0	2	0	32	1	0	1	0	2	10	520	52	0	582	9	239	0	0	248	864
5:45 PM	27	0	4	0	31	1	0	0	0	1	3	472	31	0	506	13	269	0	0	282	820
6:00 PM	21	0	8	0	29	0	0	0	0	0	5	695	49	0	749	9	408	0	0	417	1195
Total	110	0	21	0	131	2	0	2	2	4	22	2247	172	0	2441	43	1193	0	0	1236	3812
Grand Total	386	0	82	1	468	14	0	5	4	19	84	6306	443	0	6833	105	6357	8	1	6470	13790
Apprch %	82.5	0.0	17.5	0.2		73.7	0.0	26.3	21.1		1.2	92.3	6.5	0.0		1.6	98.3	0.1	0.0		
Total %	2.8	0.0	0.6	0.0	3.4	0.1	0.0	0.0	0.0	0.1	0.6	45.7	3.2	0.0	49.6	0.8	46.1	0.1	0.0	46.9	
Cars, PU, Vans	384	0	82	1	466	13	0	1	4	14	81	6248	442	0	6771	104	6318	8	1	6430	13681
% Cars, PU, Vans	99.5	0.0	####	100.0	99.6	92.9	0.0	20.0	####	73.7	96.4	99.1	99.8	0.0	99.1	99.0	99.4	####	####	99.4	99.2
Heavy Trucks	2	0	0		2	1	0	4		5	3	58	1		62	1	39	0		40	109
%Heavy Trucks	0.5	0.0	0.0	0.0	0.4	7.1	0.0	80.0	0.0	26.3	3.6	0.9	0.2	0.0	0.9	1.0	0.6	0.0	0.0	0.6	0.8

Project ID: 13-9195-001
Location: Rogers Bridge Rd & Mc
City: Johns Creek

PEAK HOURS

Day: Tuesday
Date: 11/19/2013

AM

	Rogers Bridge Rd Northbound				Rogers Bridge Rd Southbound				McGinnis Ferry Rd Eastbound				McGinnis Ferry Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
7:30 AM	36	0	9	45	0	0	0	0	10	271	22	303	3	483	1	487	835
7:45 AM	25	0	5	30	1	0	0	1	1	278	31	310	3	542	1	546	887
8:00 AM	27	0	8	35	0	0	0	0	8	273	29	310	6	506	0	512	857
8:15 AM	26	0	8	34	3	0	1	4	6	258	20	284	5	562	2	569	891
Total Volume	114	0	30	144	4	0	1	5	25	1080	102	1207	17	2093	4	2114	3470
% App. Total	79.2	0.0	20.8	100	80.0	0.0	20.0	100	2.1	89.5	8.5	100	0.8	99.0	0.2	100	
PHF	0.800				0.313				0.973				0.929				
Cars, PU, Vans	113	0	30	143	4	0	1	5	25	1073	101	1199	17	2082	4	2103	3450
% Cars, PU, Vans	99.1	0.0	####	99.3	100.0	0.0	####	100.0	####	99.4	99.0	99.3	####	99.5	100.0	99.5	99.4
Heavy Trucks	1	0	0	1	0	0	0	0	0	7	1	8	0	11	0	11	20
%Heavy Trucks	0.9	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.6	1.0	0.7	0.0	0.5	0.0	0.5	0.6

PM

	Rogers Bridge Rd Northbound				Rogers Bridge Rd Southbound				McGinnis Ferry Rd Eastbound				McGinnis Ferry Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 04:15 PM to 06:15 PM																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
5:15 PM	32	0	7	39	0	0	1	1	4	560	40	604	12	277	0	289	933
5:30 PM	30	0	2	32	1	0	1	2	10	520	52	582	9	239	0	248	864
5:45 PM	27	0	4	31	1	0	0	1	3	472	31	506	13	269	0	282	820
6:00 PM	21	0	8	29	0	0	0	0	5	695	49	749	9	408	0	417	1195
Total Volume	110	0	21	131	2	0	2	4	22	2247	172	2441	43	1193	0	1236	3812
% App. Total	84.0	0.0	16.0	100	50.0	0.0	50.0	100	0.9	92.1	7.0	100	3.5	96.5	0.0	100	
PHF	0.840				0.500				0.815				0.741				
Cars, PU, Vans	110	0	21	131	2	0	0	2	22	2225	172	2419	43	1190	0	1233	3785
% Cars, PU, Vans	####	0.0	####	100.0	100.0	0.0	0.0	50.0	####	99.0	####	99.1	####	99.7	0.0	99.8	99.3
Heavy Trucks	0	0	0	0	0	0	2	2	0	22	0	22	0	3	0	3	27
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	####	50.0	0.0	1.0	0.0	0.9	0.0	0.3	0.0	0.2	0.7

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

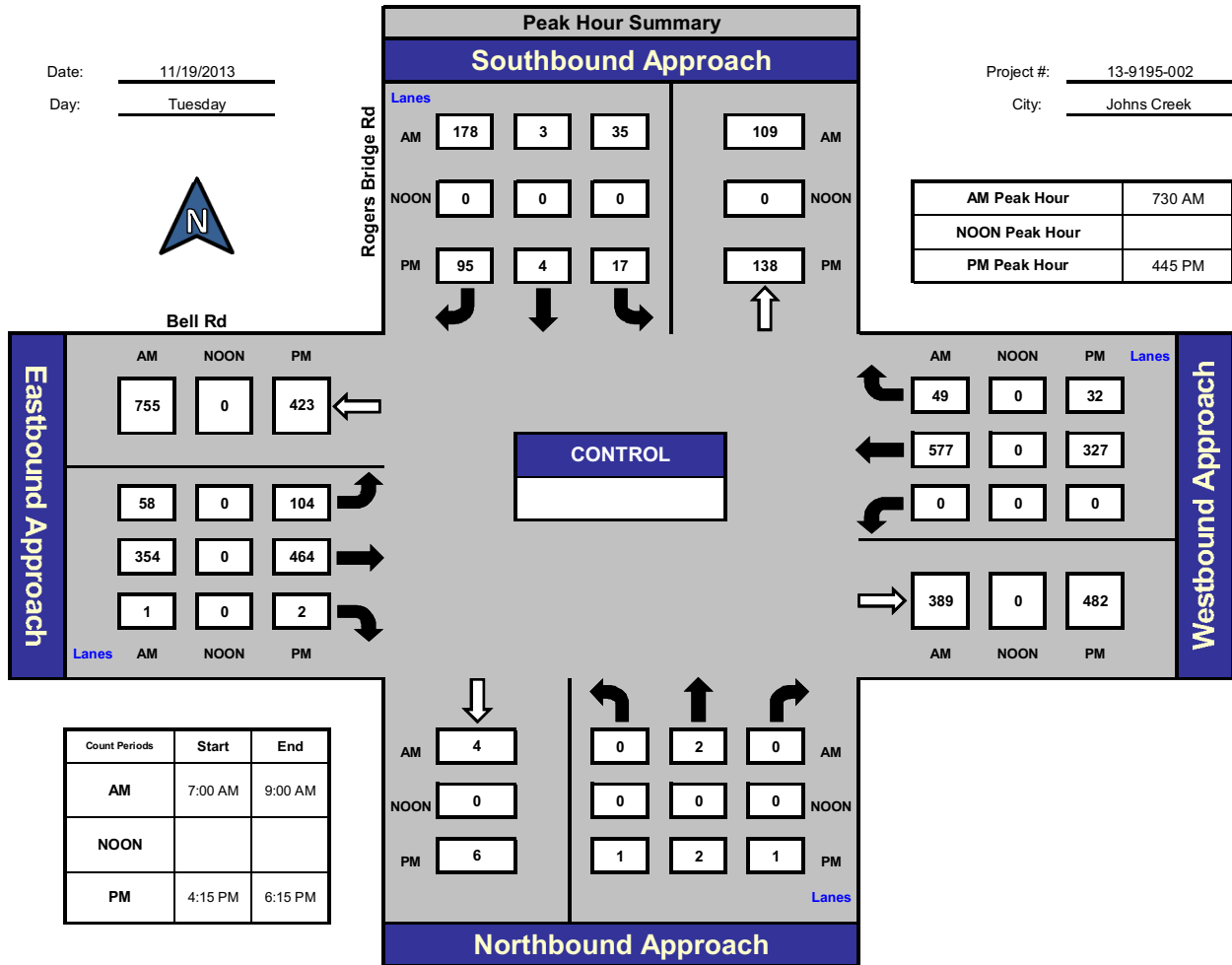
Rogers Bridge Rd and Bell Rd, Johns Creek

Date: 11/19/2013

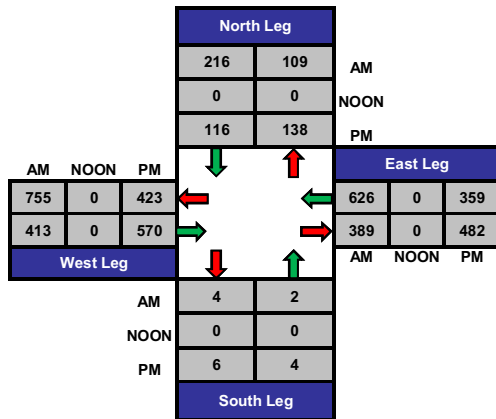
Day: Tuesday

Project #: 13-9195-002

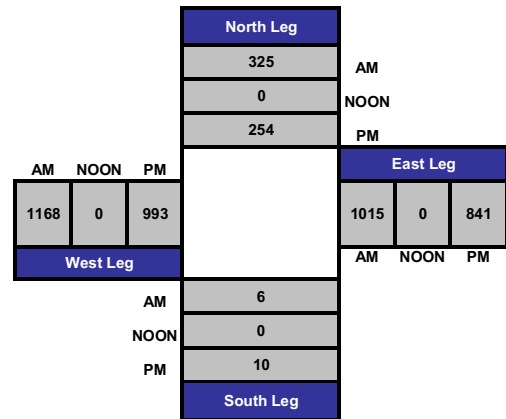
City: Johns Creek



Total Ins & Outs



Total Volume Per Leg



Project ID: 13-9195-002
Location: Rogers Bridge Rd & Bell Rd
City: Johns Creek

Day: Tuesday
Date: 11/19/2013

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:15 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Rogers Bridge Rd Northbound					Rogers Bridge Rd Southbound					Bell Rd Eastbound					Bell Rd Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	0	1	0	0	1	10	0	32	0	42	3	50	0	0	53	0	105	7	0	112	208
7:15 AM	0	0	0	0	0	16	0	25	0	41	6	71	0	0	77	0	121	14	0	135	253
7:30 AM	0	0	0	0	0	14	0	39	0	53	16	96	0	0	112	0	130	24	0	154	319
7:45 AM	0	0	0	0	0	5	1	55	0	61	14	102	0	0	116	0	160	13	0	173	350
Total	0	1	0	0	1	45	1	151	0	197	39	319	0	0	358	0	516	58	0	574	1130
8:00 AM	0	1	0	0	1	7	1	49	0	57	14	87	0	0	101	0	156	6	0	162	321
8:15 AM	0	1	0	0	1	9	1	35	0	45	14	69	1	0	84	0	131	6	0	137	267
8:30 AM	0	2	0	0	2	5	2	12	0	19	7	48	0	0	55	0	113	2	0	115	191
8:45 AM	0	1	0	0	1	2	0	21	0	23	12	32	0	0	44	0	100	1	0	101	169
Total	0	5	0	0	5	23	4	117	0	144	47	236	1	0	284	0	500	15	0	515	948
BREAK																					
4:15 PM	0	0	0	0	0	3	0	15	0	18	22	101	0	0	123	0	56	4	0	60	201
4:30 PM	0	1	0	0	1	3	1	16	0	20	20	115	0	0	135	0	56	4	0	60	216
4:45 PM	0	1	0	0	1	8	2	19	0	29	17	129	2	0	148	0	77	7	0	84	262
5:00 PM	1	0	1	0	2	1	1	28	0	30	25	116	0	0	141	0	94	12	0	106	279
Total	1	2	1	0	4	15	4	78	0	97	84	461	2	0	547	0	283	27	0	310	958
5:15 PM	0	1	0	0	1	3	1	26	0	30	31	113	0	0	144	0	79	6	0	85	260
5:30 PM	0	0	0	0	0	5	0	22	0	27	31	106	0	0	137	0	77	7	0	84	248
5:45 PM	0	1	0	0	1	1	0	20	0	21	36	103	0	0	139	0	59	2	0	61	222
6:00 PM	0	1	0	0	1	5	0	24	0	29	26	110	0	0	136	0	69	4	0	73	239
Total	0	3	0	0	3	14	1	92	0	107	124	432	0	0	556	0	284	19	0	303	969
Grand Total	1	11	1	0	13	97	10	438	0	545	294	1448	3	0	1745	0	1583	119	0	1702	4005
Apprch %	7.7	84.6	7.7	0.0		17.8	1.8	80.4	0.0		16.8	83.0	0.2	0.0		0.0	93.0	7.0	0.0		
Total %	0.0	0.3	0.0	0.0	0.3	2.4	0.2	10.9	0.0	13.6	7.3	36.2	0.1	0.0	43.6	0.0	39.5	3.0	0.0	42.5	
Cars, PU, Vans	1	11	1	0	13	97	10	438	0	545	294	1445	3	0	1742	0	1580	119	0	1699	3999
% Cars, PU, Vans	####	####	####	0.0	100.0	####	####	100.0	0.0	100.0	####	99.8	####	0.0	99.8	0.0	99.8	####	0.0	99.8	99.9
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3	0	3	0	0	3	6
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.2	0.0	0.2	0.0	0.0	0.2	0.1

Project ID: 13-9195-002
Location: Rogers Bridge Rd & Bell
City: Johns Creek

PEAK HOURS

Day: Tuesday
Date: 11/19/2013

AM

	Rogers Bridge Rd Northbound				Rogers Bridge Rd Southbound				Bell Rd Eastbound				Bell Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
7:30 AM	0	0	0	0	14	0	39	53	16	96	0	112	0	130	24	154	319
7:45 AM	0	0	0	0	5	1	55	61	14	102	0	116	0	160	13	173	350
8:00 AM	0	1	0	1	7	1	49	57	14	87	0	101	0	156	6	162	321
8:15 AM	0	1	0	1	9	1	35	45	14	69	1	84	0	131	6	137	267
Total Volume	0	2	0	2	35	3	178	216	58	354	1	413	0	577	49	626	1257
% App. Total	0.0	####	0.0	100	16.2	1.4	82.4	100	14.0	85.7	0.2	100	0.0	92.2	7.8	100	
PHF	0.500				0.885				0.890				0.905				
Cars, PU, Vans	0	2	0	2	35	3	178	216	58	351	1	410	0	577	49	626	1254
% Cars, PU, Vans	0.0	####	0.0	100.0	100.0	####	####	100.0	####	99.2	####	99.3	0.0	####	100.0	100.0	99.8
Heavy Trucks	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.7	0.0	0.0	0.0	0.0	0.2

PM

	Rogers Bridge Rd Northbound				Rogers Bridge Rd Southbound				Bell Rd Eastbound				Bell Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 04:15 PM to 06:15 PM																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
4:45 PM	0	1	0	1	8	2	19	29	17	129	2	148	0	77	7	84	262
5:00 PM	1	0	1	2	1	1	28	30	25	116	0	141	0	94	12	106	279
5:15 PM	0	1	0	1	3	1	26	30	31	113	0	144	0	79	6	85	260
5:30 PM	0	0	0	0	5	0	22	27	31	106	0	137	0	77	7	84	248
Total Volume	1	2	1	4	17	4	95	116	104	464	2	570	0	327	32	359	1049
% App. Total	25.0	50.0	25.0	100	14.7	3.4	81.9	100	18.2	81.4	0.4	100	0.0	91.1	8.9	100	
PHF	0.500				0.967				0.963				0.847				
Cars, PU, Vans	1	2	1	4	17	4	95	116	104	464	2	570	0	326	32	358	1048
% Cars, PU, Vans	####	####	####	100.0	100.0	####	####	100.0	####	100.0	####	100.0	0.0	99.7	100.0	99.7	99.9
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.1

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

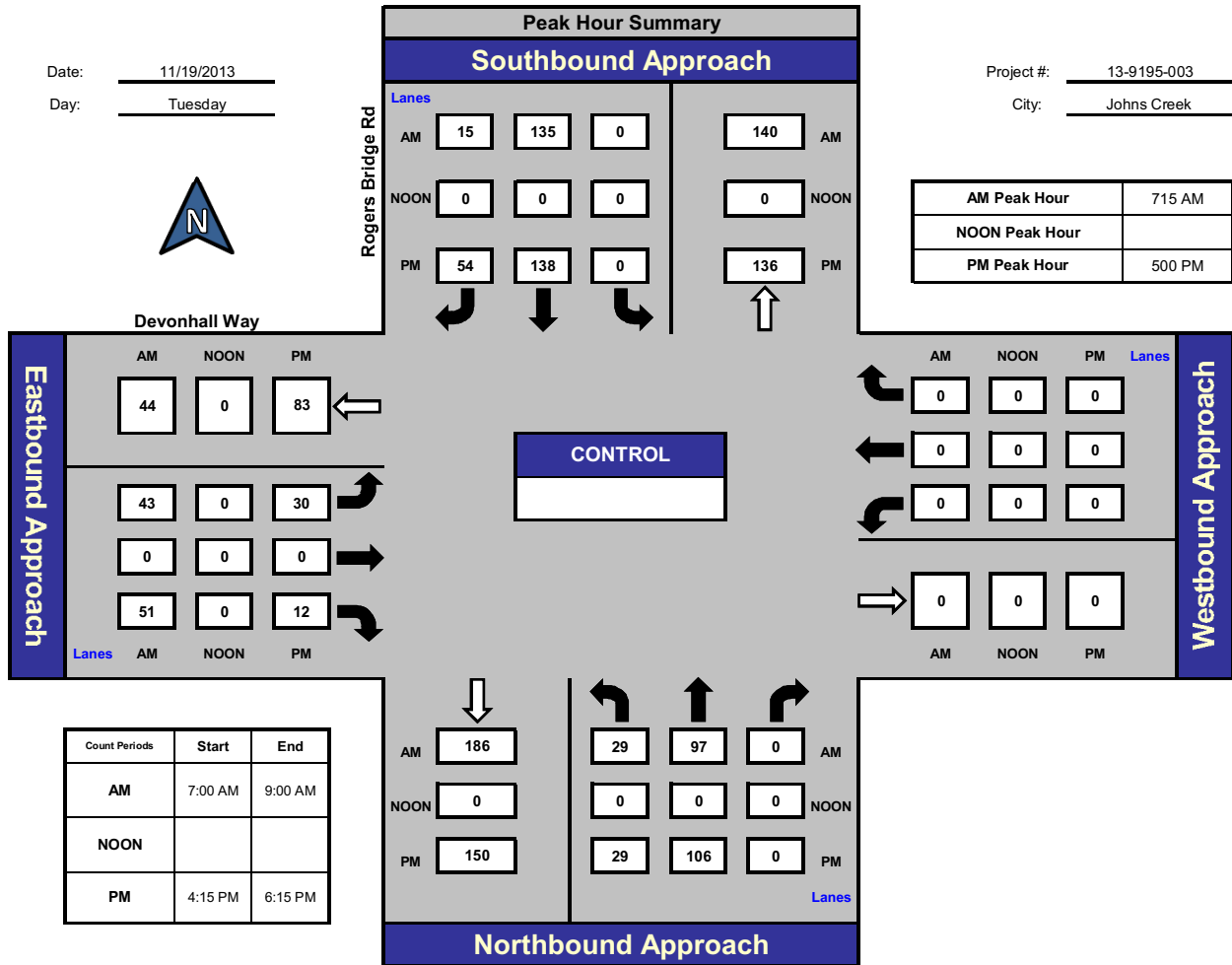
Rogers Bridge Rd and Devonhall Way, Johns Creek

Date: 11/19/2013

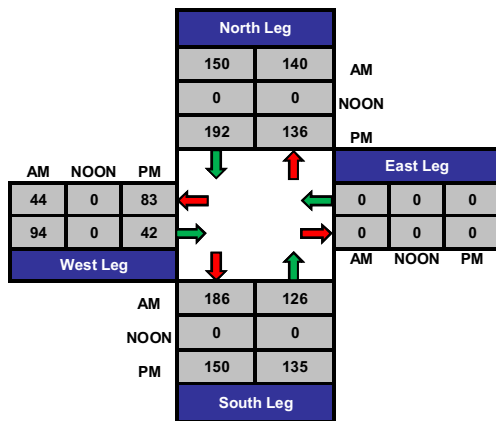
Day: Tuesday

Project #: 13-9195-003

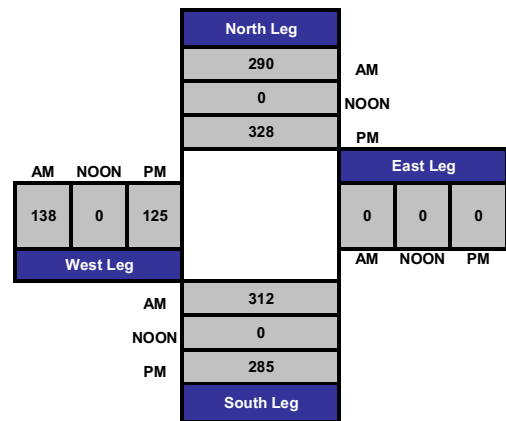
City: Johns Creek



Total Ins & Outs



Total Volume Per Leg



DAY: Tuesday

P M
PEDESTRIANS

Project ID: 13-9195-003
Location: Rogers Bridge Rd & Devonhall Way
City: Johns Creek

Day: Tuesday
Date: 11/19/2013

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:15 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Rogers Bridge Rd Northbound					Rogers Bridge Rd Southbound					Devonhall Way Eastbound					Devonhall Way Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	4	11	0	0	15	0	26	2	0	28	7	0	14	1	21	0	0	0	0	0	64
7:15 AM	8	18	0	0	26	0	21	3	0	24	9	0	13	2	22	0	0	0	0	0	72
7:30 AM	8	36	0	0	44	0	35	3	0	38	7	0	13	1	20	0	0	0	0	0	102
7:45 AM	8	20	0	0	28	0	37	3	0	40	12	0	10	0	22	0	0	0	0	0	90
Total	28	85	0	0	113	0	119	11	0	130	35	0	50	4	85	0	0	0	0	0	328
8:00 AM	5	23	0	0	28	0	42	6	0	48	15	0	15	0	30	0	0	0	0	0	106
8:15 AM	6	18	0	0	24	0	21	4	0	25	9	0	9	0	18	0	0	0	0	0	67
8:30 AM	3	17	0	0	20	0	10	4	0	14	6	0	7	0	13	0	0	0	0	0	47
8:45 AM	2	17	0	0	19	0	17	1	0	18	8	0	6	0	14	0	0	0	0	0	51
Total	16	75	0	0	91	0	90	15	0	105	38	0	37	0	75	0	0	0	0	0	271
BREAK																					
4:15 PM	5	15	0	0	20	0	17	13	0	30	6	0	5	0	11	0	0	0	0	0	61
4:30 PM	7	17	0	0	24	0	13	18	0	31	7	0	5	0	12	0	0	0	0	0	67
4:45 PM	4	14	0	0	18	0	23	9	1	32	5	0	9	1	14	0	0	0	0	0	64
5:00 PM	11	23	0	0	34	0	33	11	0	44	3	0	6	0	9	0	0	0	0	0	87
Total	27	69	0	0	96	0	86	51	1	137	21	0	25	1	46	0	0	0	0	0	279
5:15 PM	6	30	0	0	36	0	36	13	0	49	9	0	3	1	12	0	0	0	0	0	97
5:30 PM	7	29	0	0	36	0	39	17	0	56	7	0	2	0	9	0	0	0	0	0	101
5:45 PM	5	24	0	0	29	0	30	13	0	43	11	0	1	0	12	0	0	0	0	0	84
6:00 PM	5	19	0	0	24	0	27	9	0	36	4	0	2	0	6	0	0	0	0	0	66
Total	23	102	0	0	125	0	132	52	0	184	31	0	8	1	39	0	0	0	0	0	348
Grand Total	94	331	0	0	425	0	427	129	1	556	125	0	120	6	245	0	0	0	0	0	1226
Apprch %	22.1	77.9	0.0	0.0		0.0	76.8	23.2	0.2		51.0	0.0	49.0	2.4		0.0	0.0	0.0	0.0		
Total %	7.7	27.0	0.0	0.0	34.7	0.0	34.8	10.5	0.1	45.4	10.2	0.0	9.8	0.5	20.0	0.0	0.0	0.0	0.0	0.0	
Cars, PU, Vans	94	329	0	0	423	0	427	128	1	555	125	0	119	6	244	0	0	0	0	0	1222
% Cars, PU, Vans	###	99.4	0.0	0.0	99.5	0.0	###	99.2	###	99.8	###	0.0	99.2	###	99.6	0.0	0.0	0.0	0.0	0.0	99.7
Heavy Trucks	0	2	0		2	0	0	1		1	0	0	1		1	0	0	0			4
%Heavy Trucks	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.8	0.0	0.2	0.0	0.0	0.8	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3

Day: Tuesday
Date: 11/19/2013

	Rogers Bridge Rd Northbound				Rogers Bridge Rd Southbound				Devonhall Way Eastbound				Devonhall Way Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total

Peak Hour for Entire Intersection Begins at 07:15 AM

[illegible]

	Rogers Bridge Rd Northbound				Rogers Bridge Rd Southbound				Devonhall Way Eastbound				Devonhall Way Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total

Peak Hour for Entire Intersection Begins at 05:00 PM

[illegible]

Appendix F

Future Roadway/Intersection Projects

Short Title

BELL ROAD AT BOLES ROAD

GDOT Project No.

0007311

Federal ID No.

CSHPP-0007-00(311)

Status

Programmed

Service Type

Roadway / Operations & Safety

Sponsor

City of Johns Creek

Jurisdiction

Fulton County (North)

Analysis Level

Exempt from Air Quality Analysis (40 CFR 93)

Existing Thru Lane

N/A

Planned Thru Lane

N/A



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Network Year

2015

Corridor Length

N/A miles

Detailed Description and Justification

The project involves constructing a three-leg single lane roundabout to replace the existing T-intersection of Bell Road and Boles Road. The proposed vertical section for Bell Road consists of two 11-foot lanes, a 10-foot urban shoulder with a 5-foot sidewalk on the west side, and a 16-foot urban shoulder with a 10-foot multi-use trail on the east side. The proposed typical section for Boles Road/Bell Road consists of two 11-foot lanes, a 10-foot urban shoulder with a 5-foot sidewalk on the north side, and a 16-foot urban shoulder with a 10-foot multi-use trail on the south side.

Phase Status & Funding Information		Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
					FEDERAL	STATE	BONDS	LOCAL/PRIVATE
PE	High Priority Projects from TEA-21	AUTH	2008	\$350,000	\$280,000	\$0,000	\$0,000	\$70,000
ROW	Highway Safety Improvement Program (HSIP)	AUTH	2013	\$1,200,000	\$1,200,000	\$0,000	\$0,000	\$0,000
UTL	Certain Safety Projects (GRC)		2014	\$50,000	\$50,000	\$0,000	\$0,000	\$0,000
CST	Certain Safety Projects (GRC)		2014	\$975,000	\$975,000	\$0,000	\$0,000	\$0,000
				\$2,575,000	\$2,505,000	\$0,000	\$0,000	\$70,000

SCP: Scoping PE: Preliminary engineering / engineering / design / planning PE-OV: GDOT oversight services for engineering ROW: Right-of-way Acquisition
 UTL: Utility relocation CST: Construction / Implementation ALL: Total estimated cost, inclusive of all phases



For additional information about this project, please call (404) 463-3100 or email transportation@atlantaregional.com.



Short Title

BELL ROAD AT CAULEY CREEK

GDOT Project No.

0008750

Federal ID No.

CSBRG-0008-00(750)

Status

Programmed

Service Type

Roadway / Bridge Upgrade

Sponsor

GDOT

Jurisdiction

Fulton County (North)

Analysis Level

Exempt from Air Quality Analysis (40 CFR 93)

Existing Thru Lane

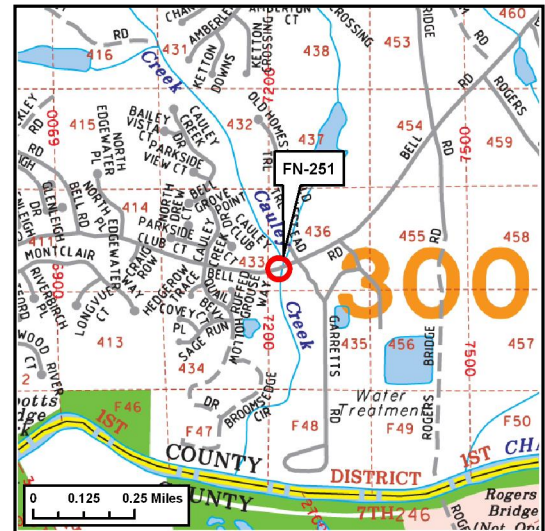
N/A

Planned Thru Lane

N/A

Detailed Description and Justification

This is a bridge upgrade project along Bell Road at Cauley Creek in the City of Johns Creek. This project will include two 12-foot travel lanes, two-foot gutters, a 8-foot multi-use trail, and a 5-1/2 foot sidewalk. The sufficiency rating for this bridge is 26.84.



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Network Year

2020

Corridor Length

0.4 miles

Phase Status & Funding Information		Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
					FEDERAL	STATE	BONDS	LOCAL/PRIVATE
PE	Bridge (Off-System)	AUTH	2011	\$121,551	\$97,241	\$24,310	\$0,000	\$0,000
ROW	High Priority Projects from TEA-21	AUTH	2013	\$360,000	\$155,200	\$0,000	\$0,000	\$204,800
CST	STP - Urban (>200K) (ARC)		2015	\$360,890	\$288,712	\$72,178	\$0,000	\$0,000
				\$842,441	\$541,153	\$96,488	\$0,000	\$204,800

SCP: Scoping PE: Preliminary engineering / engineering / design / planning PE-OV: GDOT oversight services for engineering ROW: Right-of-way Acquisition
 UTL: Utility relocation CST: Construction / Implementation ALL: Total estimated cost, inclusive of all phases



For additional information about this project, please call (404) 463-3100 or email transportation@atlantaregional.com.



Short Title

MCGINNIS FERRY ROAD WIDENING FROM
BROOKWOOD ROAD TO PEACHTREE INDUSTRIAL
BOULEVARD

GDOT Project No.

TBD

Federal ID No.

N/A

Status

Aspirations

Service Type

Roadway / General Purpose Capacity

Sponsor

TBD

Jurisdiction

Forsyth County

Analysis Level

Not modeled

Existing Thru Lane

4

Planned Thru Lane

6

Network Year

TBD

Corridor Length

6.4 miles

Detailed Description and Justification



No Image Available

Phase Status & Funding Information		Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
					FEDERAL	STATE	BONDS	LOCAL/PRIVATE
ALL	TBD		TBD	\$67,400,000	\$0,000	\$0,000	\$0,000	\$67,400,000
				\$67,400,000	\$0,000	\$0,000	\$0,000	\$67,400,000

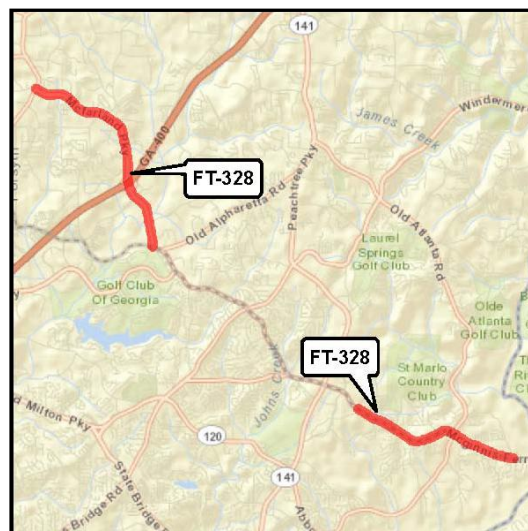
SCP: Scoping PE: Preliminary engineering / engineering / design / planning PE-OV: GDOT oversight services for engineering ROW: Right-of-way Acquisition
 UTL: Utility relocation CST: Construction / Implementation ALL: Total estimated cost, inclusive of all phases



For additional information about this project, please call (404) 463-3100 or email transportation@atlantaregional.com.



Short Title	TRAFFIC SIGNAL CABINET UPGRADES AT 15 LOCATIONS
GDOT Project No.	0012639
Federal ID No.	N/A
Status	Programmed
Service Type	Roadway / Operations & Safety
Sponsor	Forsyth County
Jurisdiction	Forsyth County
Analysis Level	Exempt from Air Quality Analysis (40 CFR 93)



Existing Thru Lane

Planned Thru Lane

Network Year

Corridor Length miles

Detailed Description and Justification

This project involves upgrading fifteen intersections on McGinnis Ferry and McFarland Boulevard. From west to east on McFarland Road, these intersections are SR 9 (Atlanta Highway), Winkler Drive, Union Hill Road, Bluegrass Lakes Parkway, SR 400 Southbound Ramps, Ronald Reagan Boulevard, Shiloh Road, Curie Drive and McGinnis Ferry Road. Further to the east on McGinnis Ferry Road, improvements will be made at Lakefield Drive, New Boyd Road, St. Marlo Country Club Drive, Old Atlanta Road, Shakerag Trace and Kemp Road. The project will install battery back-ups, countdown pedestrian heads, and upgrade conflict monitors at all fifteen existing intersections as identified. This projects local match will be funded under the safety enhancement projects in Forsyth County's SPLOST VII program as approved by the voters to run from March 2013 through March 2019. The project is being funded under the Roadway Operations and Safety Program, a regional program defined in PLAN 2040 to make smaller-scale improvements along existing roadways which are the most critical for cross-jurisdictional travel. With the exception of certain systemwide programs with broad benefits across a defined geographic area, eligibility under this program is limited to facilities on the Regional Strategic Transportation System, with additional priority given to those also identified as a Regional Thoroughfare. Both McFarland Road and McGinnis Ferry Road are designated as regional thoroughfares.

Phase Status & Funding Information	Status	FISCAL YEAR	TOTAL PHASE COST	BREAKDOWN OF TOTAL PHASE COST BY FUNDING SOURCE			
				FEDERAL	STATE	BONDS	LOCAL/PRIVATE
PE STP - Urban (>200K) (ARC)		2014	\$20,000	\$16,000	\$0,000	\$0,000	\$4,000
CST STP - Urban (>200K) (ARC)		2014	\$380,000	\$304,000	\$0,000	\$0,000	\$76,000
			\$400,000	\$320,000	\$0,000	\$0,000	\$80,000

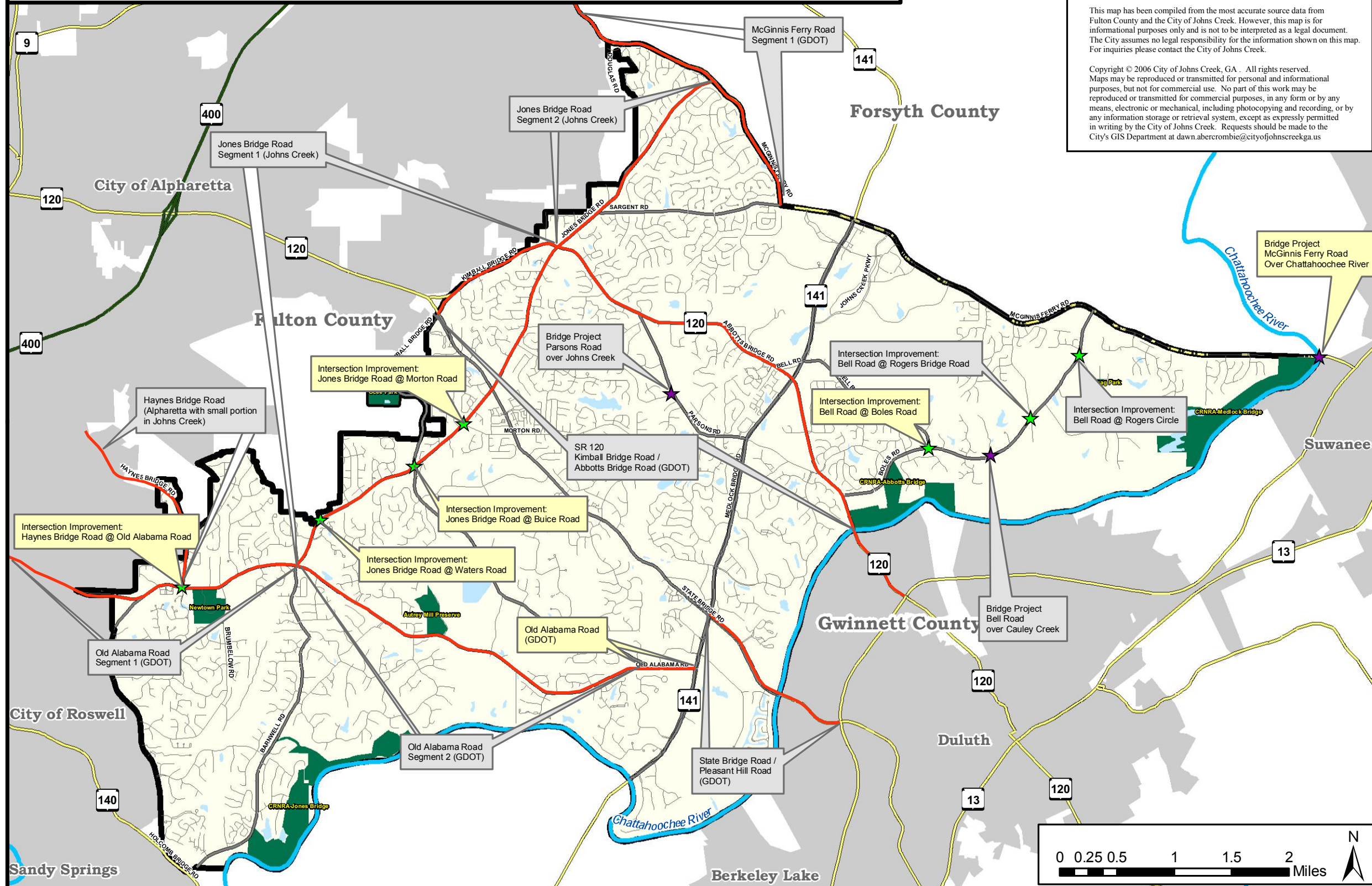
SCP: Scoping PE: Preliminary engineering / engineering / design / planning PE-OV: GDOT oversight services for engineering ROW: Right-of-way Acquisition
 UTL: Utility relocation CST: Construction / Implementation ALL: Total estimated cost, inclusive of all phases



For additional information about this project, please call (404) 463-3100 or email transportation@atlantaregional.com.



Transportation Capital Improvement Projects (FY2009)



Regional Inset

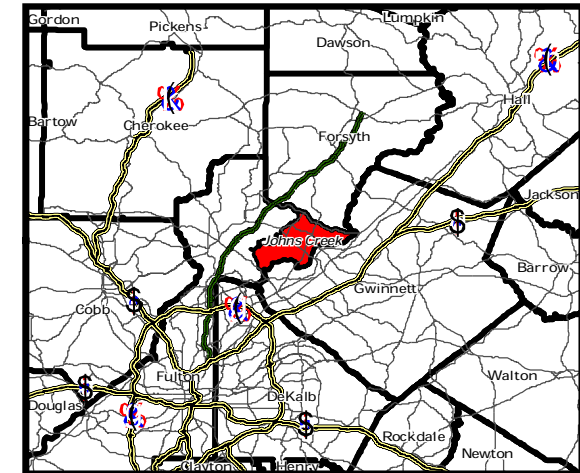


Figure T-3

Legend

Capital Improvement Projects

- ★ Intersection Improvement Project
- ★ Bridge Project
- Road Capacity Project

Short - Term (0 - 5 Years)

Long - Term (Greater Than 5 Years)

Road Layers

- Arterial/Collector
- Local Road

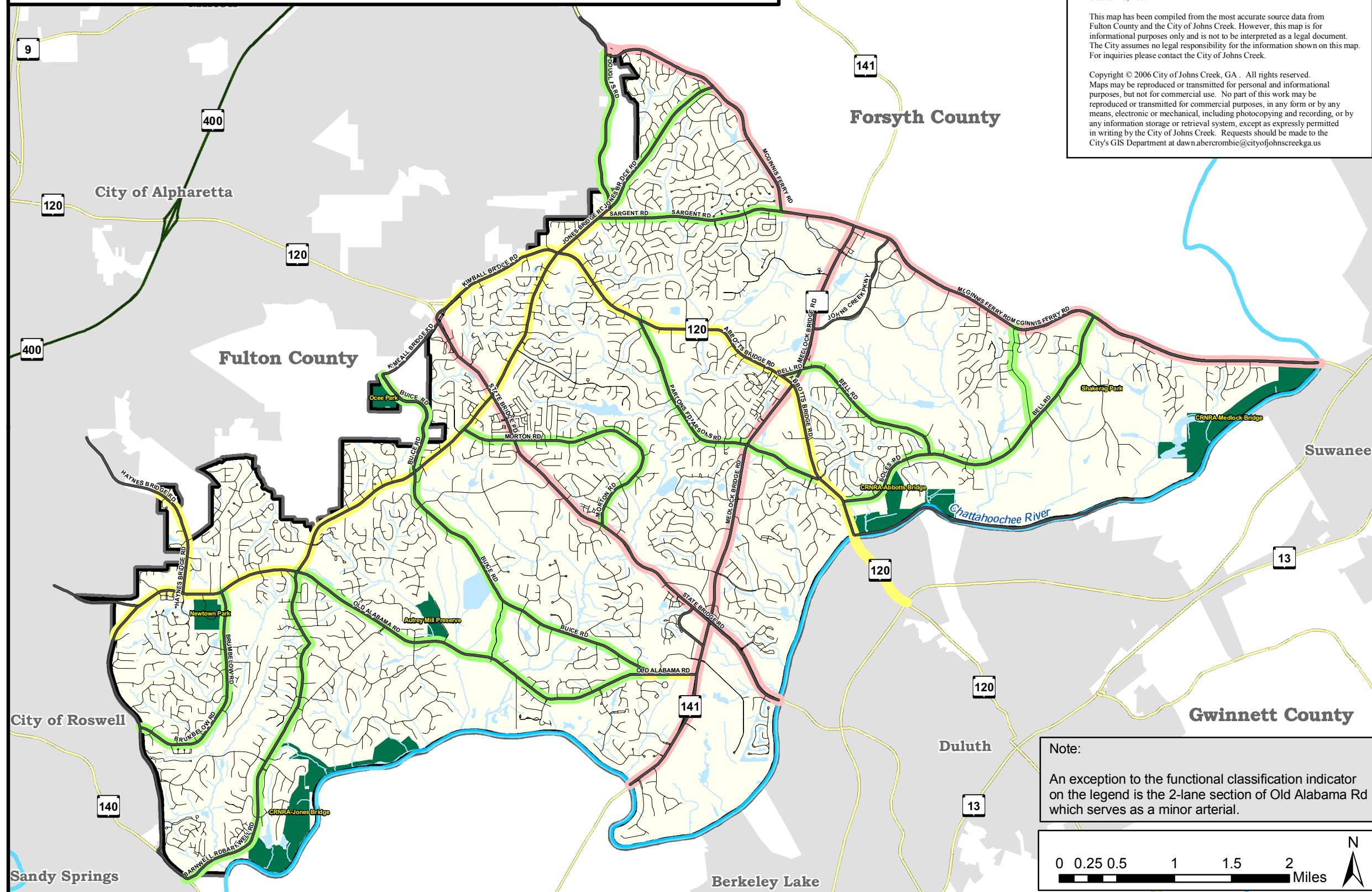
Other Layers

- Chattahoochee River
- Other State Highway / U.S. Highway
- Parks
- Johns Creek City Limits
- Other City Limits
- County Boundary
- Lakes / Ponds / Streams

Source: ARC, Fulton County, and Jacobs

This map is intended for planning purposes only.

2030 Recommended Functional Classification



Regional Inset

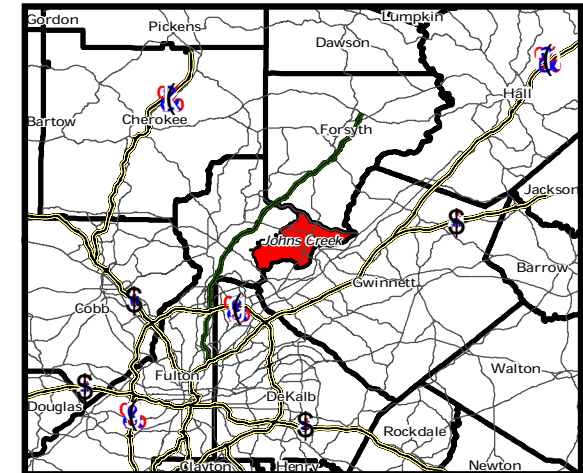


Figure T-4

Legend

2030 Recommended Functional Classification and Roadway Network

- Principal Arterial - 4 or More Through Lanes
- Minor Arterial - 4 Through Lanes With Turn Lanes
- Collector - Preserve 2 Through Lanes With Turn Lanes

Johns Creek Road Network

- Major Road
- Local Road

Other Layers

- Other State Highway / U.S. Highway
- Chattahoochee River
- Parks
- Lakes / Ponds / Streams
- Johns Creek City Limits
- Other City Limits
- County Boundary

Source: City of Johns Creek, Fulton Co., Jacobs

This map is intended for planning purposes only.

City of Johns Creek											
Transportation Short-Term Work Program, 2013-2017 and 2012 Status Report											
Proj. ID #	Project Description						Lead Responsibility	Estimated Cost (2012 dollars)	*Potential Funding Source		
		2013	2014	2015	2016	2017					
Projects included in Atlanta Regional Commission's E6 RTP 2008-2013 Transportation Improvement Program, GDOT's Construction Work Program, and the ARC PLAN 2040 Regional Transportation Plan (FY2012-2040)											
T1	ARC# FN-197 Design and construct intersection improvement at Jones Bridge Rd at Waters Rd.	PE & ROW	COMPLETED								
		CST	X					City	FY12: \$295,000	City	
									FY12: \$696,000	Federal / GDOT: STP Funding	
									2012 Status: Currently Underway: Construction to begin Summer 2012.		
T2	ARC# FN-223 Design and construct intersection improvement at Jones Bridge Rd at Buice Rd	PE & ROW	COMPLETED								
		CST	X					City	FY11: \$175,000	City	
									FY11: \$480,000	Federal / GDOT: STP Funding	
									2012 Status: Currently Underway: Construction to begin Summer 2012.		
T3	ARC# FN-196 Design and construct intersection improvement at Jones Bridge Rd at Morton Rd	PE & ROW	COMPLETED								
		CST	X					City	FY11: \$672,000	City	
									FY11: \$520,000	Federal / GDOT: STP Funding	
									2012 Status: Currently Underway: Construction to begin Summer 2012.		
T4	ARC# FN-238 Design and construct intersection improvement at Boles Rd at Bell Rd	ROW	X					City	FY12: \$170,000	City	
									FY12: \$680,000	Federal / GDOT: HPP Funding	
									2012 Status: Postponed: Currently in redesigned due to residential impacts. ROW anticipated to begin in Winter 2012.		
		Utility	X					City	\$50,000	City	
		2012 Status: Postponed: Currently in redesigned due to residential impacts. Utility coordination anticipated to start back up in Summer 2012.									
		CST		X					City	\$800,000	Federal / GDOT: HPP Funding
										\$200,000	City
T6	Construction of McGinnis Ferry Rd widening at Chattahoochee River	GDOT PROJECT: COMPLETED									
		2012 Status: Completed: Estimated completed in June 2012.									
T7	ARC# FN-233A NFCTP project # VH108: McGinnis Ferry Rd widening from Union Hill Rd to Sargent Rd (Identified as a tier one project in NFCTP)	Long Range (2018-2030) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012. Project submitted by Forsyth County.									
T7.1	ARC# FT-063A Union Hill Rd Widening Segment 1: from McGinnis Ferry Rd to McFarland Rd	Long Range (2018-2030) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012. Project submitted by Forsyth County.									
T7.2	ARC# FT-065A McFarland Rd Widening Segment 1 from McGinnis Ferry Rd to SR400.	Long Range (2031-2040) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012. Project submitted by Forsyth County.									
T7.3	ARC# FT-324 Interchange justification report (IJR) development study - SR 400 at McGinnis Ferry Rd.	REPORT UNDERWAY IN 2012									

* Funding is subject to annual budget allocation by Mayor and City Council, potential bond issuance, and availability of funding from federal and state grants.
Updated 5/21/12

City of Johns Creek											
Transportation Short-Term Work Program, 2013-2017 and 2012 Status Report											
Proj. ID #	Project Description						Lead Responsibility	Estimated Cost (2012 dollars)	*Potential Funding Source		
		2013	2014	2015	2016	2017					
T7.4	ARC# FT-028C Old Atlanta Rd Widening from James Burgess Rd to McGinnis Ferry Rd	PE	AUTHORIZED IN TIP								
		ROW	X					Forsyth County	N/A - outside of Johns Creek	Forsyth	
		CST	Long Range (2031-2040) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012. Project submitted by Forsyth County.								
T8	Construct Johns Creek Greenway - Segment 1	COMPLETED									
T9	ARC# FN-AR-BP076B Design and construct SR120 (Kimball Bridge Road / Abbotts Bridge Road) Pedestrian Connectivity Project from Webb Bridge Road to Medlock Bridge Road. Includes future connection for T62	PE	X					City	FY07: \$40,000	City	
									FY08: \$160,000	Federal / GDOT: HPP Funding	
		2012 Status:		Currently Underway: Ongoing.							
		ROW	X					City	FY12: \$77,000	City	
									FY12: \$308,000	Federal / GDOT: HPP Funding	
		2012 Status:		Currently Underway: Under review by GDOT approval process.							
		Utility		X				City	\$25,000	City	
									\$125,000	City	
		CST		X				City	\$500,000	Federal / GDOT: HPP Funding	
		Total	\$650,000								
T11	ARC# FN-273 NFCTP project # VH211: GDOT PROJECT: Old Alabama Rd capacity improvements from Nesbit Ferry Road to Buice Rd and operational improvements from Jones Bridge to Buice Rd (Identified as a tier two project in NFCTP)	GDOT PROJECT: Long Range (2018-2030)									
T12	ARC# PENDING TIP UPDATE IN FALL 2012 GDOT PROJECT: ROW and construct Old Alabama Rd from Buice Rd to Medlock Bridge Rd	ROW	X	X				GDOT	\$1,380,000	Federal / GDOT	
		2012 Status:		Currently Underway & Postponed: GDOT Project - Engineering and Environmental underway. ROW and CST postponed due to project being dropped from TIP. Verbal commitment that project could be reinstalled in the TIP in the Fall 2012.							
		CST			X			GDOT	\$2,953,600	Federal / GDOT	
		Total	\$4,333,600								
T13	ROW and construct intersection improvement at Medlock Bridge Rd at Abbotts Bridge Rd	GDOT PROJECT: COMPLETED in 2012. 100% GDOT funding.									
	2012 Status:		Completed: GDOT Project - Estimated completion Summer 2012.								

City of Johns Creek										
Transportation Short-Term Work Program, 2013-2017 and 2012 Status Report										
Proj. ID #	Project Description							Lead Responsibility	Estimated Cost (2012 dollars)	*Potential Funding Source
			2013	2014	2015	2016	2017			
T13.1	ARC# FN-251 Design and construct a bridge replacement on Bell Road over Cauley Creek	PE	X					GDOT	\$121,551	GDOT
		2012 Status:	Currently Underway: GDOT Project - Engineering underway by GDOT in-house design. Possible shortening of project timeframe pending the Transportation Referendum vote in July 2012.							
		ROW	X					City	\$713,000	GDOT / Federal
									FY07: \$200,000	City
		Utility			X			City	\$10,000	City
		CST			X			GDOT	\$360,890	GDOT / Federal
Total	\$1,205,441									
T13.2	ARC# FN-252 Design and construct a bridge replacement on Parson Road over Johns Creek	PE	X					GDOT	\$121,551	GDOT
		2012 Status:	Currently Underway: GDOT Project - Engineering underway by GDOT in-house design. Possible shortening of project timeframe pending the Transportation Referendum vote in July 2012.							
		ROW	X					City	\$705,000	GDOT / Federal
									FY07: \$200,000	City
		Utility			X			City	\$10,000	City
		CST			X			GDOT	\$402,040	GDOT / Federal
Total	\$1,238,591									
T13.3	ARC# FN-261 ITS improvements along State Bridge Road from Medlock Bridge to Kimball Bridge and Jones Bridge Road from State Bridge Road to Abbotts Bridge	PE	X					City	FY11: \$20,000	City
								City	FY11: \$80,000	Federal / GDOT: HPP Funding
		2012 Status:	Currently Underway: 1) State Bridge Rd: Completed under DOE funding. 2) Engineering currently underway to Jones Bridge Rd from Old Alabama Rd to McGinnis Ferry Rd and Old Alabama Rd to State Bridge Rd.							
		CST	X					City	FY11: \$192,500	City
								City	FY11: \$770,000	Federal / GDOT: HPP Funding
T13.3.1	ARC# GW-326 Pleasant Hill Rd ATMS from Buford Hwy to Fulton County Line	CST		X				Gwinnett County	N/A - outside of Johns Creek	Gwinnett / Federal
T13.4	Design and construct a bridge replacement on Old Alabama Road over Johns Creek (LOCAL BRIDGE ONLY IF T11 IS NOT FUNDED)	PE			X	X		City	\$250,000	City
		ROW				X		City	\$300,000	City
		CST					X	City	\$950,000	City
		Total	\$1,500,000							
		Possible shortening of project timeframe pending the Transportation Referendum vote in July 2012.								

* Funding is subject to annual budget allocation by Mayor and City Council, potential bond issuance, and availability of funding from federal and state grants.
Updated 5/21/12

City of Johns Creek										
Transportation Short-Term Work Program, 2013-2017 and 2012 Status Report										
Proj. ID #	Project Description						Lead Responsibility	Estimated Cost (2012 dollars)	*Potential Funding Source	
		2013	2014	2015	2016	2017				
T13.5	Design and construct a bridge replacement on Old Alabama Road over a tributary to Johns Creek, near Autrey Mill. (LOCAL BRIDGE ONLY IF T11 IS NOT FUNDED)	PE			X	X		City	\$250,000	City
		ROW				X		City	\$300,000	City
		CST					X	City	\$850,000	City
		Total	\$1,400,000							
		Possible shortening of project timeframe pending the Transportation Referendum vote in July 2012.								
T13.6	Design and construct an additional westbound through lane on Old Alabama Road from Haynes Bridge Road to Nesbit Ferry utilizing existing right of way. (This is a local project if T11 is not funded.)	PE		X				City	\$40,000	City
		ROW		X				City	\$75,000	City
		CST		X				City	\$300,000	City
		Total	\$415,000							
T13.7	Design and construct extension to the existing right turn-lanes along Medlock Bridge Road from Old Alabama Road to State Bridge Road utilizing existing right of way	GDOT PROJECT: COMPLETED. 100% GDOT funding.								
	2012 Status:	Currently Underway: GDOT Project: CST anticipated in Spring 2012 to extend existing north bound right-turn lanes on Medlock Bridge Rd from Old Alabama to State Bridge Rd. Extend existing southbound right turn lanes on Medlock Bridge Rd from Medlock Crossing to Old Alabama.								
T13.7.1	Design and construct southbound right turn lane on Medlock Bridge Road from State Bridge Road to Medlock Crossing Pkwy.		X					City	\$175,000	City / GDOT / Federal
T13.7.2	ARC# GW-374 SR 141 (Peachtree Parkway / Medlock Bridge Rd) Widening from Peachtree Industrial Blvd to State Bridge Road. (Portion of project along Medlock Bridge Rd from Chattahoochee River to State Bridge Rd identified as a tier three project NFCTP project # VH301)	Long Range (2031-2040) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012. Project submitted by Gwinnett County.								
T13.8	ARC# FN-264 NFCTP project # VH101: SR 120 (Abbotts Bridge Road) - Widening from Parson Road (east) to Peachtree Industrial Blvd (Identified as a tier one project in NFCTP) JOHNS CREEK CST PRIORITY #3 TIA-FN-043	PE	X	X	X			GDOT	\$1,444,095	Federal / GDOT
		2012 Status:	Currently Underway & Postponed: GDOT Project: Federal engineering funds are authorized but this project is part of the Transportation Referendum vote in July 2012. Possible shortening of project timeframe if federal funds were not used.							
		ROW				X		GDOT	\$9,600,000	Federal / GDOT
		CST	Long Range (2018-2040) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012 Project submitted by Johns Creek and Gwinnett County							
		Total	\$11,044,095							
T13.9	ARC# FN-263 NFCTP project # VH111: SR 120 (Kimball Bridge Road) - Widening from Old Milton Parkway to Jones Bridge Road (Identified as a tier one project in NFCTP) JOHNS CREEK PRIORITY #1 TIA-FN-002	Long Range (2018-2030) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012 Project submitted by Johns Creek and Alpharetta								
T13.9.1	Old Milton Parkway Widening from SR400 to SR120 / Kimball Bridge Rd TIA-FN-003	Long Range (2031-2040) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012 Project submitted by Alpharetta								
T13.10	ARC# FN-270 NFCTP project # VH112: Jones Bridge Road - Widening from Taylor Road to McGinnis Ferry Rd (Identified as a tier one project in NFCTP) JOHNS CREEK PRIORITY #2	Long Range (2018-2030) City requested project limits to extend to McGinnis Ferry due to T13.10.1								

* Funding is subject to annual budget allocation by Mayor and City Council, potential bond issuance, and availability of funding from federal and state grants.
Updated 5/21/12

City of Johns Creek Transportation Short-Term Work Program, 2013-2017 and 2012 Status Report									
Proj. ID #	Project Description						Lead Responsibility	Estimated Cost (2012 dollars)	*Potential Funding Source
		2013	2014	2015	2016	2017			
T13.10.1	ARC# FT-067A Brookwood Rd Widening from McGinnis Ferry Rd to SR 141 / Peachtree Parkway	Long Range (2031-2040) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012 Project submitted by Forsyth County							
T13.11	ARC# FN-225 NFCTP project # VH207: State Bridge Road - Widening from Medlock Bridge Road to Chattahoochee River (Identified as a tier two project in NFCTP)	Long Range (2031-2040)							
T13.12	ARC# GW-271B Pleasant Hill Rd Widening from McClure Bridge to Chattahoochee River	Long Range (2031-2040) SUBJECT TO TRANSPORTATION ACT REFERENDUM IN JULY 2012 Project submitted by Gwinnett County							
T13.13	Develop a feasibility study of a new multimodal connection for circulation and a possible Public Private Partnership with Technology Park Atlanta (TPA)		X				City	\$150,000	Federal: LCI / City
Projects Identified in Comprehensive Plan - Not in ARC TIP									
T14	Develop concept design considering innovative intersection configurations at Medlock Bridge Rd at State Bridge Rd intersection and explore new roadway connections to improve operations and movements between Medlock Bridge Rd, State Bridge Rd and Old Alabama Rd	X					City	\$150,000	City
T15	Develop concept design considering innovative intersection configurations at Medlock Bridge Rd at Abbotts Bridge Rd intersection. Subject to Transportation Referendum vote in July 2012 (see T13.8)		X				City	\$100,000	City
T16	Develop concept design considering innovative intersection configurations at State Bridge Rd at SR120 / Kimball Bridge Rd intersection. Subject to Transportation Referendum vote in July 2012 (see T13.9)		X				City	\$100,000	City
T17	Develop concept design considering innovative intersection configurations at State Bridge Rd at Jones Bridge Rd intersection and operational improvements on Jones Bridge Rd to Morton Rd		X				City	\$100,000	City
T18	Develop concept design considering innovative intersection configurations at SR120 / Kimball Bridge Rd / Abbotts Bridge Rd at Jones Bridge Rd intersection Subject to Transportation Referendum vote in July 2012 (see T13.9 and T13.10)		X				City	\$100,000	City
T19	Implement intersection operational improvement at Old Alabama Rd at Jones Bridge Rd (project identified as a State Aid Grant Application in 2008) (This is a local project if T11 is not funded)			X			City	\$500,000	City
T20	Implement intersection operational improvement at Old Alabama Rd at Haynes Bridge Rd (project identified as a State Aid Grant Application in 2008) (This is a local project if T11 is not funded)			X			City	\$250,000	City
T21	Study corridors to identify where turn lanes / traffic calming initiative are beneficial along Barnwell Rd, Bell/Boles Rd, Sargent Rd, Brumbelow Rd and Parsons Rd.	X					City	\$100,000	City
	2012 Status:	Currently Underway: Studies are underway. 1) Bell at Boles Intersection underway by consultant design. 2) Staff is reviewing operational improvements along Barnwell Rd, Sargent Rd, Parsons Rd & Brumbelow Rd.							

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Updated 5/21/12

City of Johns Creek										
Transportation Short-Term Work Program, 2013-2017 and 2012 Status Report										
Proj. ID #	Project Description						Lead Responsibility	Estimated Cost (2012 dollars)	*Potential Funding Source	
		2013	2014	2015	2016	2017				
T22	Design and construct along Barnwell Rd corridor to provide turn lanes, improve sight distance, and construct sidewalk / multi-use trails.	PE		X				City	\$150,000	City
		ROW			X			City	\$75,000	City
		CST				X		City	\$750,000	City
		Total	\$975,000							
T23	Design and construct along Bell/Boles Rd corridor to provide turn lanes and improve skew angle at the northern intersection with Rogers Circle. Design and construction improvements at the southern intersection with Rogers Circle to improve sight distance.	PE		X				City	\$150,000	City
		ROW			X			City	\$50,000	City
		CST				X		City	\$400,000	City
		Total	\$600,000							
T24	Design and construct along Sargent Rd corridor to provide turn lanes and improve sight distance.	PE		X				City	\$75,000	City
		ROW			X			City	\$20,000	City
		CST				X		City	\$200,000	City
		Total	\$295,000							
T25	Develop concept design for capacity and/or operational improvements along Abbotts Bridge Rd (see T13.8 and T13.9)	X						GDOT	Staff / GDOT	GDOT / Federal
	2012 Status:	Currently Underway & Postponed: Two capacity projects identified in the NFCTP (see T13.8 & T13.9) but are postponed until the Transportation Referendum vote in July 2012. Additional operational improvements are being reviewed.								
T26	Design and construct Old Alabama Rd improvements from Nesbit Ferry Rd to Jones Bridge Rd (This is a local project if T11 is not funded)	PE		X				City	\$200,000	City
		ROW			X			City	\$200,000	City
		CST				X		City	\$800,000	City
		Total	\$1,200,000							
T26.1	Design and construct Old Alabama Rd operational improvements from Jones Bridge Rd to Buice Road	ABSORBED INTO T11								
T27	Develop a Safe Routes to School plan including traffic circulation, pedestrian, and bicycle travel modes	X						City and Board of Education	\$200,000	City and Board of Education
T28	Implement Safe Routes to School campaign in coordination with schools and community		X	X	X	X		City and Board of Education	\$3,000,000	City and Board of Education
T29	Establish access management standards, based on roadway functional classification and surrounding land uses, for future development and retrofit as appropriate (access management standards developed in Transportation Master Plan refined and applied to individual corridors through development of corridor management plans)	COMPLETED (Draft standards were part of the final deliverables for the NFCTP)								
T29.1	NFCTP Access Management project: Corridor study and develop transportation access management standards for regionally significant corridors: Arnold Mill Rd (SR 140)/ Rucker Rd/ Old Milton Pkwy (SR 120)/ State Bridge Rd				X			Milton, Roswell, Alpharetta, Johns Creek	TBD	Local/ GDOT / Federal
T30	Construct Traffic Control Center (TCC) for monitoring of traffic conditions and signal systems. The TCC will consist of hardware, software and communications.	COMPLETED								
T30.1	Expand and continue to upgrade the Traffic Control Center.	X	X	X	X	X		City	FY13-FY14: \$150,000 annually FY15-FY17: TBD	City

* Funding is subject to annual budget allocation by Mayor and City Council, potential bond issuance, and availability of funding from federal and state grants.
Updated 5/21/12

City of Johns Creek Transportation Short-Term Work Program, 2013-2017 and 2012 Status Report									
Proj. ID #	Project Description						Lead Responsibility	Estimated Cost (2012 dollars)	*Potential Funding Source
		2013	2014	2015	2016	2017			
T39	Study Medlock Bridge Rd corridor to evaluate capacity options, in coordination with Forsyth and Gwinnett counties	X	X				City	\$80,000	City / Forsyth Co / Gwinnett Co / GDOT / Federal
	2012 Status:	Currently Underway: 1) GDOT project underway to extend right turn lane along Medlock Bridge Rd from Old Alabama to State Bridge Rd. 2) GDOT operational / safety improvements at Medlock Bridge Rd and State Bridge Rd are underway. 3) Extended fiber inter-connectivity over bridge to connect with Gwinnett County. 4) Portion of Medlock subject to Transportation Referendum in July 2012 (see T13.7.2).							
T41	Identify intersection operations and minor geometric improvement needs not included in work program	X	X	X	X	X	City	Staff	City
	2012 Status:	Currently Underway: Ongoing project.							
T42	Implement intersection operations and minor geometric improvements	X	X	X	X	X	City	\$450,000	City
	2012 Status:	Currently Underway: Completed engineering and construction to extend the right turn lanes on Jones Bridge Road from Fox Ct to Abbotts Bridge Rd.							
T43	Identify bridge conditions and establish rehabilitation program	X	X	X	X	X	City	Staff	City / GDOT
	2012 Status:	Currently Underway: Ongoing inspection program.							
T44	Implement bridge rehabilitation program		X		X		City	\$100,000	City
T45	Complete sidewalk/multiuse network along all collector and arterial roads within 1/2 mile of schools, libraries and parks, as well as along local streets providing direct access to schools, libraries and parks (emphasis should first be placed on one side of 2-lane roads and both sides of 4-lane roads)	X	X	X	X	X	City	\$2,500,000	City
	2012 Status:	Currently Underway: 1) Completed the construction of various sidewalk segments along Jones Bridge Rd, Morton Rd, Bell Rd, and Brumbelow Rd. 2) Design underway for MARTA sidewalk/trails within half-mile of existing bus stops on Medlock Bridge Rd, Abbotts Bridge Rd, Bell Rd, Johns Creek Parkway, and Lakefield Drive. 3) Design underway for sidewalk/trails along portions of Barnwell Rd, Haynes Bridge Rd, Douglas Rd, Findley Rd, and Medlock Bridge Rd.							
T45.1	Evaluate methods to connect all current and future parks and to develop a continuous greenbelt network throughout new development (Same as LU15)	X	X	X	X	X	City	Staff	City / GDOT
	2012 Status:	Currently Underway: Ongoing. Future Sidewalk and Trail Map adopted and is being implemented along with new development.							
T46	Study Medlock Bridge Rd corridor to identify location of potential park and ride lots for secure overnight parking				X		City	\$50,000	City
T47	Develop neighborhood infrastructure program for signalization, resurfacing, sidewalk, drainage, and pedestrian/bicycle connection to facilities	X					City	\$30,000	City
	2012 Status:	Currently Underway: Currently ongoing.							
T48	Implement neighborhood infrastructure program annually for signalization, resurfacing, sidewalk, drainage, and pedestrian/bicycle connection to facilities	X	X	X	X	X	City	\$750,000	City (Revolving Funds) / Private
	2012 Status:	Currently Underway: Currently ongoing.							
T49	Develop a plan for landscaping and parking/trailheads for the multiuse trails system	COMPLETED							
T50	Implement multi-use trails amenities previously approved by Mayor and City Council.	COMPLETED							
	2012 Status:	Completed: Trail Amenity project to be completed Summer 2012.							

* Funding is subject to annual budget allocation by Mayor and City Council, potential bond issuance, and availability of funding from federal and state grants.
Updated 5/21/12

PLAN 2040 RTP – Appendix A-1: FY 2012-2017 Transportation Improvement Program

FT-028A	OLD ATLANTA ROAD	Jurisdiction	Forsyth County	Existing	Planned	Length (mi.)	Network Year
N/A	FROM SHARON ROAD TO NICHOLS ROAD	Sponsor	Forsyth County	2	4	0.9	2030
Programmed		Service Type	Roadway / General Purpose Capacity	Analysis In the Region's Air Quality Conformity Analysis			

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2009	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$2,390,000	\$0,000	\$2,390,000
ROW		2013	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$1,610,000	\$0,000	\$1,610,000
CST		LR 2018-2030	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$5,000,000	\$0,000	\$5,000,000
				\$0,000	\$0,000	\$9,000,000	\$0,000	\$9,000,000

FT-028C	OLD ATLANTA ROAD	Jurisdiction	Forsyth County	Existing	Planned	Length (mi.)	Network Year
N/A	FROM JAMES BURGESS ROAD TO MCGINNIS FERRY ROAD	Sponsor	Forsyth County	2	4	3.4	2030
Programmed		Service Type	Roadway / General Purpose Capacity	Analysis In the Region's Air Quality Conformity Analysis			

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2009	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$0,000	\$0,000	\$0,000
ROW		2013	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$5,930,000	\$0,000	\$5,930,000
CST		LR 2018-2030	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$18,400,000	\$0,000	\$18,400,000
				\$0,000	\$0,000	\$24,330,000	\$0,000	\$24,330,000

FT-060	SR 369 (MATT HIGHWAY)	Jurisdiction	Forsyth County	Existing	Planned	Length (mi.)	Network Year
142260-	AT SETTINGDOWN CREEK	Sponsor	GDOT	2	2	0.5	2020
Programmed		Service Type	Roadway / Bridge Upgrade	Analysis Exempt from Air Quality Analysis (40 CFR 93)			

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2002	Bridge (On-System)	\$0,000	\$0,000	\$0,000	\$0,000	\$0,000
ROW		2015	Bridge (On-System)	\$325,253	\$81,313	\$0,000	\$0,000	\$406,566
CST		2017	Bridge (On-System)	\$1,630,527	\$407,632	\$0,000	\$0,000	\$2,038,159
CST		2017	STP - Statewide Flexible (GDOT)	\$21,454	\$5,364	\$0,000	\$0,000	\$26,818
				\$1,977,234	\$494,309	\$0,000	\$0,000	\$2,471,543

PLAN 2040 RTP – Appendix A-1: FY 2012-2017 Transportation Improvement Program

FN-238	BELL ROAD	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0007311	AT BOLES ROAD	Sponsor	City of Johns Creek	N/A	N/A	N/A	2016
Programmed		Service Type	Roadway / Operations & Safety	Analysis Exempt from Air Quality Analysis (40 CFR 93)			

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2008	High Priority Projects from TEA-21	\$120,000	\$0,000	\$30,000	\$0,000	\$150,000
ROW		2012	High Priority Projects from TEA-21	\$772,000	\$0,000	\$193,000	\$0,000	\$965,000
UTL		2013	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$50,000	\$0,000	\$50,000
CST		2013	High Priority Projects from TEA-21	\$800,000	\$0,000	\$200,000	\$0,000	\$1,000,000
				\$1,692,000	\$0,000	\$473,000	\$0,000	\$2,165,000

FN-251	BELL ROAD	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0008750	AT CAULEY CREEK	Sponsor	GDOT	N/A	N/A	0.4	2016
Programmed		Service Type	Roadway / Bridge Upgrade	Analysis Exempt from Air Quality Analysis (40 CFR 93)			

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2011	Bridge (Off-System)	\$97,241	\$24,310	\$0,000	\$0,000	\$121,551
ROW		2013	High Priority Projects from TEA-21	\$713,000	\$0,000	\$178,250	\$0,000	\$891,250
CST		2015	Bridge (Off-System)	\$288,712	\$72,178	\$0,000	\$0,000	\$360,890
				\$1,098,953	\$96,488	\$178,250	\$0,000	\$1,373,691

FN-252	PARSONS ROAD	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0008751	AT JOHNS CREEK	Sponsor	GDOT	N/A	N/A	0.4	2016
Programmed		Service Type	Roadway / Bridge Upgrade	Analysis Exempt from Air Quality Analysis (40 CFR 93)			

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2011	Bridge (Off-System)	\$97,241	\$24,310	\$0,000	\$0,000	\$121,551
ROW		2013	High Priority Projects from TEA-21	\$705,000	\$0,000	\$176,250	\$0,000	\$881,250
CST		2015	Bridge (Off-System)	\$321,632	\$80,408	\$0,000	\$0,000	\$402,040
				\$1,123,873	\$104,718	\$176,250	\$0,000	\$1,404,841

PLAN 2040 RTP – Appendix A-1: FY 2012-2017 Transportation Improvement Program

FN-261	ITS IMPROVEMENTS ALONG STATE BRIDGE ROAD, JONES BRIDGE ROAD, AND OLD ALABAMA ROAD	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0010328		Sponsor	City of Johns Creek	N/A	N/A	12.4	2016
Programmed		Service Type	Roadway / Operations & Safety	Analysis Exempt from Air Quality Analysis (40 CFR 93)			

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE		2012	High Priority Projects from TEA-21	\$80,000	\$0,000	\$20,000	\$0,000	\$100,000
CST		2013	High Priority Projects from TEA-21	\$770,000	\$0,000	\$192,500	\$0,000	\$962,500
				\$850,000	\$0,000	\$212,500	\$0,000	\$1,062,500

FN-264	SR 120 (ABBOTTS BRIDGE ROAD / DULUTH HIGHWAY) WIDENING	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
721000-	FROM PARSONS ROAD (SOUTHERN INTERSECTION) TO PEACHTREE INDUSTRIAL BOULEVARD	Sponsor	TBD	2	4	1.4	2030
Programmed		Service Type	Roadway / General Purpose Capacity	Analysis In the Region's Air Quality Conformity Analysis			

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE		2012	STP - Statewide Flexible (GDOT)	\$1,178,382	\$294,595	\$0,000	\$0,000	\$1,472,977
ROW		2016	STP - Statewide Flexible (GDOT)	\$7,680,000	\$1,920,000	\$0,000	\$0,000	\$9,600,000
CST		LR 2018-2030	General Federal Aid - 2018-2040	\$11,600,000	\$2,900,000	\$0,000	\$0,000	\$14,500,000
				\$20,458,382	\$5,114,595	\$0,000	\$0,000	\$25,572,977

FN-275	SANDY SPRINGS CIRCLE PEDESTRIAN FACILITIES - PHASE II	Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0010385	FROM HAMMOND DRIVE TO SR 9 (ROSWELL ROAD)	Sponsor	City of Sandy Springs	N/A	N/A	0.7	2016
Programmed		Service Type	Last Mile Connectivity / Pedestrian Facility	Analysis Exempt from Air Quality Analysis (40 CFR 93)			

	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
PE	AUTH	2011	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$250,000	\$0,000	\$250,000
ROW		2012	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$850,504	\$0,000	\$850,504
CST		2013	STP - Urban (>200K) (ARC)	\$1,887,000	\$0,000	\$471,750	\$0,000	\$2,358,750
				\$1,887,000	\$0,000	\$1,572,254	\$0,000	\$3,459,254

PLAN 2040 RTP – Appendix A-1: FY 2012-2017 Transportation Improvement Program

FN-276	SR 400 RESTRIPIING TO CREATE CONTINUOUS FOURTH LANE IN SOUTHBOUND DIRECTION		Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
TBD	FROM WINDWARD PARKWAY TO SOUTHBOUND EXIT RAMP AT SR 140 (HOLCOMB BRIDGE ROAD)		Sponsor	GDOT	3	4	N/A	2016
Programmed			Service Type	Roadway / General Purpose Capacity	Analysis In the Region's Air Quality Conformity Analysis			
CST	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
		2012	SRTA - Toll Revenue	\$0,000	\$300,000	\$0,000	\$0,000	\$300,000
				\$0,000	\$300,000	\$0,000	\$0,000	\$300,000

FN-AR-191	SR 400 INTERCHANGE UPGRADE		Jurisdiction	Regional - North	Existing	Planned	Length (mi.)	Network Year
751580	AT NORTHRIDGE ROAD		Sponsor	GDOT	N/A	N/A	N/A	2016
Programmed			Service Type	Roadway / Interchange Capacity	Analysis In the Region's Air Quality Conformity Analysis			
PE	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
	AUTH	2011	SRTA - Toll Revenue	\$0,000	\$500,000	\$0,000	\$0,000	\$500,000
ROW		2012	SRTA - Toll Revenue	\$0,000	\$1,000,000	\$0,000	\$0,000	\$1,000,000
CST		2013	SRTA - Toll Revenue	\$0,000	\$5,500,000	\$0,000	\$0,000	\$5,500,000
				\$0,000	\$7,000,000	\$0,000	\$0,000	\$7,000,000

FN-AR-BP076B	SR 120 (KIMBALL BRIDGE/ABBOTTS BRIDGE ROAD) PEDESTRIAN CONNECTIVITY		Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0007310	FROM WEBB BRIDGE ROAD TO SR 141 (MEDLOCK BRIDGE ROAD)		Sponsor	City of Johns Creek	N/A	N/A	3.3	2016
Programmed			Service Type	Last Mile Connectivity / Sidepaths and Trails	Analysis Exempt from Air Quality Analysis (40 CFR 93)			
PE	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
	AUTH	2009	High Priority Projects from TEA-21	\$160,000	\$0,000	\$40,000	\$0,000	\$200,000
ROW		2012	High Priority Projects from TEA-21	\$340,000	\$0,000	\$160,000	\$0,000	\$500,000
CST		2013	High Priority Projects from TEA-21	\$500,000	\$0,000	\$1,300,000	\$0,000	\$1,800,000
				\$1,000,000	\$0,000	\$1,500,000	\$0,000	\$2,500,000

PLAN 2040 RTP – Appendix A-2: Regional Transportation Plan (FY 2012-2040)

FN-225	STATE BRIDGE ROAD / PLEASANT HILL ROAD		Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0007839	FROM SR 141 (MEDLOCK BRIDGE ROAD) TO CHATTAHOOCHEE RIVER		Sponsor	TBD	4	6	0.9	2040
Long Range			Service Type		Analysis			
			Roadway / General Purpose Capacity		In the Region's Air Quality Conformity Analysis			
ALL	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
		LR 2031-2040	General Federal Aid - 2018-2040	\$8,000,000	\$0,000	\$2,000,000	\$0,000	\$10,000,000
				\$8,000,000	\$0,000	\$2,000,000	\$0,000	\$10,000,000

FN-230	JOHNSON FERRY ROAD		Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
0006911	AT SANDY SPRINGS CIRCLE		Sponsor	City of Sandy Springs	N/A	N/A	N/A	2016
Programmed			Service Type		Analysis			
			Roadway / Operations & Safety		Exempt from Air Quality Analysis (40 CFR 93)			
PE OV ROW CST	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
	AUTH	2007	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$100,000	\$0,000	\$100,000
	AUTH	2011	STP - Statewide Flexible (GDOT)	\$40,000	\$10,000	\$0,000	\$0,000	\$50,000
		2012	Local Jurisdiction/Municipality Funds	\$0,000	\$0,000	\$1,400,000	\$0,000	\$1,400,000
		2012	STP - Urban (>200K) (ARC)	\$640,000	\$0,000	\$281,200	\$0,000	\$921,200
				\$680,000	\$10,000	\$1,781,200	\$0,000	\$2,471,200

FN-232A	SR 140 (ARNOLD MILL ROAD)		Jurisdiction	Fulton County (North)	Existing	Planned	Length (mi.)	Network Year
721305-	FROM MOUNTAIN ROAD IN CHEROKEE COUNTY TO RANCHETTE ROAD IN FULTON COUNTY		Sponsor	GDOT	2	4	3.5	2030
Programmed			Service Type		Analysis			
			Roadway / General Purpose Capacity		In the Region's Air Quality Conformity Analysis			
PE ROW CST	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
	AUTH	AUTH	STP - Statewide Flexible (GDOT)	\$0,000	\$0,000	\$0,000	\$0,000	\$0,000
		2016	STP - Statewide Flexible (GDOT)	\$30,384,304	\$7,596,076	\$0,000	\$0,000	\$37,980,380
		LR 2018-2030	General Federal Aid - 2018-2040	\$24,320,000	\$6,080,000	\$0,000	\$0,000	\$30,400,000
				\$54,704,304	\$13,676,076	\$0,000	\$0,000	\$68,380,380

PLAN 2040 RTP – Appendix A-2: Regional Transportation Plan (FY 2012-2040)

GW-364	SR 20 (BUFORD DRIVE) WIDENING		Jurisdiction	Gwinnett County	Existing	Planned	Length (mi.)	Network Year
TBD	FROM SR 124 (BRASELTON HIGHWAY) TO HURRICANE SHOALS ROAD		Sponsor	TBD	4	6	1.2	2030
Long Range			Service Type		Analysis			
			Roadway / General Purpose Capacity		In the Region's Air Quality Conformity Analysis			
ALL	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
		LR 2018-2030	General Federal Aid - 2018-2040	\$13,100,000	\$3,300,000	\$0,000	\$0,000	\$16,400,000
				\$13,100,000	\$3,300,000	\$0,000	\$0,000	\$16,400,000

GW-367	US 78 (EAST MAIN STREET) FRONTAGE ROADS		Jurisdiction	Gwinnett County	Existing	Planned	Length (mi.)	Network Year
TBD	FROM SR 124 (SCENIC HIGHWAY) TO SR 84 (GRAYSON PARKWAY)		Sponsor	TBD	0	4	1.6	2040
Long Range			Service Type		Analysis			
			Roadway / General Purpose Capacity		In the Region's Air Quality Conformity Analysis			
ALL	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
		LR 2031-2040	General Federal Aid - 2018-2040	\$26,200,000	\$6,500,000	\$0,000	\$0,000	\$32,700,000
				\$26,200,000	\$6,500,000	\$0,000	\$0,000	\$32,700,000

GW-371	SR 140 (JIMMY CARTER BOULEVARD) WIDENING		Jurisdiction	Gwinnett County	Existing	Planned	Length (mi.)	Network Year
TBD	FROM SR 13 (BUFORD HIGHWAY) TO SR 141 (PEACHTREE INDUSTRIAL BOULEVARD)		Sponsor	TBD	4	6	1.4	2030
Long Range			Service Type		Analysis			
			Roadway / General Purpose Capacity		In the Region's Air Quality Conformity Analysis			
ALL	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
		LR 2018-2030	General Federal Aid - 2018-2040	\$12,200,000	\$3,100,000	\$0,000	\$0,000	\$15,300,000
				\$12,200,000	\$3,100,000	\$0,000	\$0,000	\$15,300,000

GW-374	SR 141 (PEACHTREE PARKWAY / MEDLOCK BRIDGE ROAD) WIDENING		Jurisdiction	Regional - Northeast	Existing	Planned	Length (mi.)	Network Year
TBD	FROM PEACHTREE INDUSTRIAL BOULEVARD TO STATE BRIDGE ROAD		Sponsor	TBD	4	6	5.7	2040
Long Range			Service Type		Analysis			
			Roadway / General Purpose Capacity		In the Region's Air Quality Conformity Analysis			
ALL	Status	Year	Fund Type	Federal	State	Local	Bonds	Total
		LR 2031-2040	General Federal Aid - 2018-2040	\$66,800,000	\$16,700,000	\$0,000	\$0,000	\$83,500,000
				\$66,800,000	\$16,700,000	\$0,000	\$0,000	\$83,500,000



Transportation Investment Act of 2010 Final Investment List Project Fact Sheet

Identification

TIA FN 043

On Final Investment List? **Yes**

Location: North Subregion

Project Name

SR 120 (Abbotts Bridge Road) from Parsons Road (east of SR 141) to Peachtree Industrial Boulevard - Widening

Project Type

Roadway

- | | |
|--|--|
| <input checked="" type="checkbox"/> Roadway Capital | <input type="checkbox"/> Aviation |
| <input type="checkbox"/> Asset Management | <input type="checkbox"/> Bicycle / Pedestrian |
| <input type="checkbox"/> Safety / Traffic Operations | <input type="checkbox"/> Transit Capital |
| <input type="checkbox"/> Freight / Logistics | <input type="checkbox"/> Transit Operations / Maint. |

PLAN 2040 Status

Project identified as line item in PLAN 2040 with construction planned for 2018-2030 timeframe

Related Project Numbers: FN-264



Description, Purpose and Benefits

DESCRIPTION: Widen 1.35 miles of Abbotts Bridge from 2 lanes to 4 lanes from Parsons Road located east of Medlock Bridge to Peachtree Industrial Blvd. This project will also include the widening of a 300 foot bridge over the Chattahoochee River. Pedestrian and Bike improvements will include sidewalk along the southern shoulder and a multi-use trail along the northern shoulder to align with the City of Johns Creek Future Sidewalk and Trail Network Map. This project is a smaller segment of the GDOT Project PI#721000. State Route 120 / Abbotts Bridge Road has been identified as part of the Regional Strategic Transportation System and the Regional Through fare Network. This project is also included in the draft version of the ARC's Plan 2040 as ASP-FN-264 or CTP-FN-010 and is a smaller segment of the proposed project limits of CTP-FN-011 or FN-265. NEED/PURPOSE/BENEFIT: Congestion Relief, SR 120 between Johns Creek to the west and Gwinnett County/City of Duluth to the east is a major commuter route. The narrow two lane cross section forces many drivers to divert several miles out of their way to use the multi-lane crossing at State Bridge Road/Pleasant Hill Road. Widening of Abbotts Bridge Road would reduce the trip distance for these diverted trips and result in a reduced VMT (Vehicle Miles Traveled) for the region.

Funding Commitments

(all amounts shown in current year 2011 dollars)

TIA Funds	\$28,000,000
Federal Funds	\$0
Local Funds*	\$0
Total Funding	\$28,000,000

* Additional local funds used to deliver some projects within that jurisdiction may not be reflected in TIA documentation yet. These commitments will be formalized in detailed project concept documents or Intergovernmental Agreements to be developing beginning in 2012 between the state (GDOT or GRTA) and that local government.

Implementation Band

Construction likely to occur in Band 2 (2016-2019)

























Appendix G

Synchro Capacity Analyses

HCM Signalized Intersection Capacity Analysis

1: Rogers Bridge Rd & McGinnis Ferry Rd

















Rogers Bridge Road Tract
AM Existing 2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1080	102	17	2093	4	114	0	30	4	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1544	1770	3539	1583	1770	1583		1770	1583	
Flt Permitted	0.04	1.00	1.00	0.21	1.00	1.00	0.64	1.00		0.73	1.00	
Satd. Flow (perm)	68	3539	1544	394	3539	1583	1200	1583		1364	1583	
Peak-hour factor, PHF	0.97	0.97	0.97	0.93	0.93	0.93	0.80	0.80	0.80	0.31	0.31	0.31
Adj. Flow (vph)	26	1113	105	18	2251	4	142	0	38	13	0	3
RTOR Reduction (vph)	0	0	33	0	0	1	0	33	0	0	3	0
Lane Group Flow (vph)	26	1113	72	18	2251	3	142	5	0	13	0	0
Confl. Peds. (#/hr)			1	1								
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	114.5	110.0	110.0	114.5	110.0	110.0	28.6	21.0		22.4	17.9	
Effective Green, g (s)	114.5	110.0	110.0	114.5	110.0	110.0	28.6	21.0		22.4	17.9	
Actuated g/C Ratio	0.72	0.69	0.69	0.72	0.69	0.69	0.18	0.13		0.14	0.11	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	96	2433	1061	320	2433	1088	241	207		202	177	
v/s Ratio Prot	c0.01	0.31		0.00	c0.64		c0.03	0.00		0.00	0.00	
v/s Ratio Perm	0.19		0.05	0.04		0.00	c0.08			0.01		
v/c Ratio	0.27	0.46	0.07	0.06	0.93	0.00	0.59	0.02		0.06	0.00	
Uniform Delay, d1	34.4	11.4	8.2	7.7	21.5	7.8	59.8	60.6		59.6	63.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.8	0.6	0.1	0.3	7.5	0.0	10.2	0.2		0.6	0.0	
Delay (s)	41.2	12.0	8.3	8.1	29.0	7.8	70.0	60.8		60.2	63.1	
Level of Service	D	B	A	A	C	A	E	E		E	E	
Approach Delay (s)		12.3			28.8			68.0			60.8	
Approach LOS		B			C			E			E	
Intersection Summary												
HCM 2000 Control Delay			25.3				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			79.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd























Rogers Bridge Road Tract
AM Existing 2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	354	1	0	577	49	0	2	0	35	3	178
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.90	0.90	0.90	0.50	0.50	0.50	0.89	0.89	0.89
Hourly flow rate (vph)	65	398	1	0	641	54	0	4	0	39	3	200
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	696			399			1399	1224	398	1199	1198	668
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	696			399			1399	1224	398	1199	1198	668
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			100	98	100	74	98	56
cM capacity (veh/h)	900			1160			62	166	651	150	172	458
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	464	696	4	243								
Volume Left	65	0	0	39								
Volume Right	1	54	0	200								
cSH	900	1160	166	338								
Volume to Capacity	0.07	0.00	0.02	0.72								
Queue Length 95th (ft)	6	0	2	132								
Control Delay (s)	2.1	0.0	27.2	38.6								
Lane LOS	A		D	E								
Approach Delay (s)	2.1	0.0	27.2	38.6								
Approach LOS			D	E								
Intersection Summary												
Average Delay			7.4									
Intersection Capacity Utilization			85.0%		ICU Level of Service				E			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Rogers Bridge Rd & McGinnis Ferry Rd

















Rogers Bridge Road Tract
PM Existing 2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	2247	172	43	1193	0	110	0	21	2	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1534	1770	3539		1770	1583		1770	1583	
Flt Permitted	0.11	1.00	1.00	0.03	1.00		0.75	1.00		0.74	1.00	
Satd. Flow (perm)	208	3539	1534	56	3539		1391	1583		1380	1583	
Peak-hour factor, PHF	0.81	0.81	0.81	0.74	0.74	0.74	0.84	0.84	0.84	0.50	0.50	0.50
Adj. Flow (vph)	27	2774	212	58	1612	0	131	0	25	4	0	4
RTOR Reduction (vph)	0	0	26	0	0	0	0	23	0	0	4	0
Lane Group Flow (vph)	27	2774	186	58	1612	0	131	3	0	4	0	0
Confl. Peds. (#/hr)			2	2								
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	137.6	133.0	133.0	137.4	132.9		22.7	18.0		22.3	17.8	
Effective Green, g (s)	137.6	133.0	133.0	137.4	132.9		22.7	18.0		22.3	17.8	
Actuated g/C Ratio	0.76	0.74	0.74	0.76	0.74		0.13	0.10		0.12	0.10	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	198	2614	1133	85	2612		185	158		180	156	
v/s Ratio Prot	0.00	c0.78		c0.02	0.46		c0.02	0.00		0.00	0.00	
v/s Ratio Perm	0.10		0.12	0.50			c0.07			0.00		
v/c Ratio	0.14	1.06	0.16	0.68	0.62		0.71	0.02		0.02	0.00	
Uniform Delay, d1	9.3	23.5	7.0	53.9	11.3		75.0	73.0		69.2	73.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	36.5	0.3	36.3	1.1		20.4	0.2		0.2	0.0	
Delay (s)	10.7	60.0	7.3	90.2	12.4		95.4	73.2		69.5	73.1	
Level of Service	B	E	A	F	B		F	E		E	E	
Approach Delay (s)		55.9			15.1			91.8			71.3	
Approach LOS		E			B			F			E	
Intersection Summary												
HCM 2000 Control Delay			43.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			83.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd























Rogers Bridge Road Tract
PM Existing 2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	104	464	2	0	327	32	1	2	1	17	4	95
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.85	0.85	0.85	0.50	0.50	0.50	0.97	0.97	0.97
Hourly flow rate (vph)	108	483	2	0	385	38	2	4	2	18	4	98
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	422			485			1205	1123	484	1109	1106	404
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	422			485			1205	1123	484	1109	1106	404
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			100			98	98	100	90	98	85
cM capacity (veh/h)	1137			1077			124	186	583	170	191	647
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	594	422	8	120								
Volume Left	108	0	2	18								
Volume Right	2	38	2	98								
cSH	1137	1077	195	433								
Volume to Capacity	0.10	0.00	0.04	0.28								
Queue Length 95th (ft)	8	0	3	28								
Control Delay (s)	2.5	0.0	24.2	16.5								
Lane LOS	A		C	C								
Approach Delay (s)	2.5	0.0	24.2	16.5								
Approach LOS			C	C								
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			67.6%	ICU Level of Service					C			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Rogers Bridge Rd & McGinnis Ferry Rd

















Rogers Bridge Road Tract
AM No Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	1190	109	18	2277	14	122	6	32	34	18	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1544	1770	3539	1583	1770	1630		1770	1745	
Flt Permitted	0.04	1.00	1.00	0.18	1.00	1.00	0.71	1.00		0.73	1.00	
Satd. Flow (perm)	67	3539	1544	342	3539	1583	1320	1630		1352	1745	
Peak-hour factor, PHF	0.97	0.97	0.97	0.93	0.93	0.93	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	32	1227	112	19	2448	15	152	8	40	42	22	16
RTOR Reduction (vph)	0	0	34	0	0	5	0	35	0	0	14	0
Lane Group Flow (vph)	32	1227	78	19	2448	11	152	13	0	42	24	0
Confl. Peds. (#/hr)			1	1								
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	116.5	112.0	112.0	116.5	112.0	112.0	24.1	18.5		22.9	17.9	
Effective Green, g (s)	116.5	112.0	112.0	116.5	112.0	112.0	24.1	18.5		22.9	17.9	
Actuated g/C Ratio	0.73	0.70	0.70	0.73	0.70	0.70	0.15	0.12		0.14	0.11	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	96	2477	1080	289	2477	1108	214	188		206	195	
v/s Ratio Prot	c0.01	0.35		0.00	c0.69		c0.02	0.01		0.01	0.01	
v/s Ratio Perm	0.23		0.05	0.05		0.01	c0.08			0.02		
v/c Ratio	0.33	0.50	0.07	0.07	0.99	0.01	0.71	0.07		0.20	0.12	
Uniform Delay, d1	43.1	11.0	7.6	7.5	23.4	7.2	64.0	63.1		60.2	64.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.1	0.7	0.1	0.4	15.5	0.0	18.1	0.7		2.2	1.3	
Delay (s)	52.2	11.7	7.7	8.0	38.9	7.3	82.1	63.7		62.4	65.3	
Level of Service	D	B	A	A	D	A	F	E		E	E	
Approach Delay (s)		12.3			38.5			77.7			63.8	
Approach LOS		B			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			32.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			84.7%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd























Rogers Bridge Road Tract
AM No Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	65	412	1	0	653	56	0	2	0	41	3	206
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.90	0.90	0.90	0.50	0.50	0.50	0.89	0.89	0.89
Hourly flow rate (vph)	73	463	1	0	726	62	0	4	0	46	3	231
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	788			464			1599	1397	463	1368	1367	757
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	788			464			1599	1397	463	1368	1367	757
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			100	97	100	59	97	43
cM capacity (veh/h)	832			1097			34	128	599	113	134	408
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	537	788	4	281								
Volume Left	73	0	0	46								
Volume Right	1	62	0	231								
cSH	832	1097	128	281								
Volume to Capacity	0.09	0.00	0.03	1.00								
Queue Length 95th (ft)	7	0	2	257								
Control Delay (s)	2.3	0.0	33.9	94.0								
Lane LOS	A		D	F								
Approach Delay (s)	2.3	0.0	33.9	94.0								
Approach LOS			D	F								
Intersection Summary												
Average Delay			17.3									
Intersection Capacity Utilization			94.9%		ICU Level of Service					F		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Rogers Bridge Rd & McGinnis Ferry Rd

















Rogers Bridge Road Tract
PM No Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	2444	184	46	1321	30	118	24	23	20	13	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1534	1770	3539	1583	1770	1728		1770	1743	
Flt Permitted	0.08	1.00	1.00	0.03	1.00	1.00	0.74	1.00		0.71	1.00	
Satd. Flow (perm)	152	3539	1534	57	3539	1583	1377	1728		1327	1743	
Peak-hour factor, PHF	0.81	0.81	0.81	0.74	0.74	0.74	0.84	0.84	0.84	0.80	0.80	0.80
Adj. Flow (vph)	46	3017	227	62	1785	41	140	29	27	25	16	12
RTOR Reduction (vph)	0	0	26	0	0	11	0	19	0	0	11	0
Lane Group Flow (vph)	46	3017	201	62	1785	30	140	37	0	25	17	0
Confl. Peds. (#/hr)			2	2								
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	138.9	133.0	133.0	136.1	131.6	131.6	22.5	18.0		22.5	18.0	
Effective Green, g (s)	138.9	133.0	133.0	136.1	131.6	131.6	22.5	18.0		22.5	18.0	
Actuated g/C Ratio	0.77	0.74	0.74	0.76	0.73	0.73	0.12	0.10		0.12	0.10	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	170	2614	1133	85	2587	1157	181	172		176	174	
v/s Ratio Prot	0.01	c0.85		c0.02	0.50		c0.02	0.02		0.00	0.01	
v/s Ratio Perm	0.20		0.13	0.53		0.02	c0.08			0.01		
v/c Ratio	0.27	1.15	0.18	0.73	0.69	0.03	0.77	0.22		0.14	0.10	
Uniform Delay, d1	13.1	23.5	7.1	55.2	13.1	6.6	75.7	74.5		69.9	73.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	74.2	0.3	42.4	1.5	0.0	26.9	2.9		1.7	1.1	
Delay (s)	17.0	97.7	7.4	97.6	14.7	6.7	102.5	77.4		71.6	74.8	
Level of Service	B	F	A	F	B	A	F	E		E	E	
Approach Delay (s)		90.3			17.2			95.3			73.3	
Approach LOS		F			B			F			E	
Intersection Summary												
HCM 2000 Control Delay			64.9				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			89.1%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd























Rogers Bridge Road Tract
PM No Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	130	536	2	0	397	40	1	2	1	20	4	113
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.85	0.85	0.85	0.50	0.50	0.50	0.97	0.97	0.97
Hourly flow rate (vph)	135	558	2	0	467	47	2	4	2	21	4	116
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	514			560			1439	1344	559	1325	1322	491
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	514			560			1439	1344	559	1325	1322	491
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	87			100			97	97	100	82	97	80
cM capacity (veh/h)	1051			1011			78	132	528	117	136	578
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	696	514	8	141								
Volume Left	135	0	2	21								
Volume Right	2	47	2	116								
cSH	1051	1011	134	346								
Volume to Capacity	0.13	0.00	0.06	0.41								
Queue Length 95th (ft)	11	0	5	48								
Control Delay (s)	3.1	0.0	33.6	22.4								
Lane LOS	A		D	C								
Approach Delay (s)	3.1	0.0	33.6	22.4								
Approach LOS			D	C								
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			78.5%		ICU Level of Service					D		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: Rogers Bridge Rd & McGinnis Ferry Rd

















Rogers Bridge Road Tract
AM Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	1190	121	28	2277	14	158	8	62	34	19	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1544	1770	3539	1583	1770	1615		1770	1751	
Flt Permitted	0.04	1.00	1.00	0.18	1.00	1.00	0.61	1.00		0.70	1.00	
Satd. Flow (perm)	66	3539	1544	344	3539	1583	1130	1615		1304	1751	
Peak-hour factor, PHF	0.97	0.97	0.97	0.93	0.93	0.93	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	32	1227	125	30	2448	15	198	10	78	42	24	16
RTOR Reduction (vph)	0	0	37	0	0	4	0	69	0	0	14	0
Lane Group Flow (vph)	32	1227	88	30	2448	11	198	19	0	42	26	0
Confl. Peds. (#/hr)			1	1								
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	116.2	112.6	112.6	116.4	112.7	112.7	27.0	19.4		20.4	16.1	
Effective Green, g (s)	116.2	112.6	112.6	116.4	112.7	112.7	27.0	19.4		20.4	16.1	
Actuated g/C Ratio	0.73	0.70	0.70	0.73	0.70	0.70	0.17	0.12		0.13	0.10	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	86	2490	1086	283	2492	1115	221	195		178	176	
v/s Ratio Prot	c0.01	0.35		0.00	c0.69		c0.04	0.01		0.01	0.01	
v/s Ratio Perm	0.26		0.06	0.07		0.01	c0.11			0.02		
v/c Ratio	0.37	0.49	0.08	0.11	0.98	0.01	0.90	0.10		0.24	0.15	
Uniform Delay, d1	43.6	10.7	7.4	7.6	22.7	7.0	64.8	62.5		62.4	65.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	0.2	0.0	0.2	14.1	0.0	33.6	1.0		0.7	1.7	
Delay (s)	46.3	10.9	7.5	7.8	36.7	7.0	98.4	63.6		63.1	67.4	
Level of Service	D	B	A	A	D	A	F	E		E	E	
Approach Delay (s)		11.4			36.2			87.7			65.2	
Approach LOS		B			D			F			E	
Intersection Summary												
HCM 2000 Control Delay			32.2									
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			160.0									
Intersection Capacity Utilization			86.7%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd

Rogers Bridge Road Tract
AM Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	81	418	1	0	655	65	0	2	0	67	3	249
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.90	0.90	0.90	0.50	0.50	0.50	0.89	0.89	0.89
Hourly flow rate (vph)	91	470	1	0	728	72	0	4	0	75	3	280
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	800			471			1698	1452	470	1418	1417	764
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	800			471			1698	1452	470	1418	1417	764
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			100			100	97	100	26	97	31
cM capacity (veh/h)	823			1091			20	116	593	102	122	404
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	562	800	4	358								
Volume Left	91	0	0	75								
Volume Right	1	72	0	280								
cSH	823	1091	116	246								
Volume to Capacity	0.11	0.00	0.03	1.46								
Queue Length 95th (ft)	9	0	3	515								
Control Delay (s)	2.9	0.0	37.1	265.0								
Lane LOS	A		E	F								
Approach Delay (s)	2.9	0.0	37.1	265.0								
Approach LOS			E	F								
Intersection Summary												
Average Delay			56.1									
Intersection Capacity Utilization			100.8%	ICU Level of Service	G							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

3: Rogers Bridge Rd & Site Driveway #1

Rogers Bridge Road Tract
AM Build 2020




















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	R
Volume (veh/h)	21	18	173	7	6	267
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	20	188	8	7	290
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	495	192			196	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	495	192			196	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			100	
cM capacity (veh/h)	531	850			1377	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	42	196	297			
Volume Left	23	0	7			
Volume Right	20	8	0			
cSH	642	1700	1377			
Volume to Capacity	0.07	0.12	0.00			
Queue Length 95th (ft)	5	0	0			
Control Delay (s)	11.0	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	11.0	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			28.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Rogers Bridge Rd & Site Driveway #2

Rogers Bridge Road Tract
AM Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1	11	33	2	26	4	145	11	9	276	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	1	12	36	2	28	4	158	12	10	300	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	517	499	302	500	489	158	303			170		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	517	499	302	500	489	158	303			170		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	92	100	97	100			99		
cM capacity (veh/h)	449	468	738	469	474	888	1258			1408		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	23	66	162	12	313							
Volume Left	10	36	4	0	10							
Volume Right	12	28	0	12	3							
cSH	566	587	1258	1700	1408							
Volume to Capacity	0.04	0.11	0.00	0.01	0.01							
Queue Length 95th (ft)	3	9	0	0	1							
Control Delay (s)	11.6	11.9	0.2	0.0	0.3							
Lane LOS	B	B	A		A							
Approach Delay (s)	11.6	11.9	0.2		0.3							
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			33.6%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 5: Rogers Bridge Rd & Site Driveway #3

Rogers Bridge Road Tract
AM Build 2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	1	
Volume (veh/h)	14	3	1	147	316	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	3	1	160	343	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	508	346	349			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	508	346	349			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	524	697	1210			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	18	161	349			
Volume Left	15	1	0			
Volume Right	3	0	5			
cSH	548	1210	1700			
Volume to Capacity	0.03	0.00	0.21			
Queue Length 95th (ft)	3	0	0			
Control Delay (s)	11.8	0.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.8	0.1	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		26.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

6: Bell Rd & Site Driveway #4

Rogers Bridge Road Tract
AM Build 2020

























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Volume (veh/h)	3	492	900	3	8	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	535	978	3	9	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	982				1521	980
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	982				1521	980
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	97
cM capacity (veh/h)	703				130	303
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	538	982	17			
Volume Left	3	0	9			
Volume Right	0	3	9			
cSH	703	1700	182			
Volume to Capacity	0.00	0.58	0.10			
Queue Length 95th (ft)	0	0	8			
Control Delay (s)	0.1	0.0	26.9			
Lane LOS	A		D			
Approach Delay (s)	0.1	0.0	26.9			
Approach LOS			D			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			57.6%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1: Rogers Bridge Rd & McGinnis Ferry Rd

















Rogers Bridge Road Tract
PM Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	2444	248	79	1321	30	155	25	42	20	15	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1534	1770	3539	1583	1770	1688		1770	1755	
Flt Permitted	0.08	1.00	1.00	0.03	1.00	1.00	0.74	1.00		0.62	1.00	
Satd. Flow (perm)	148	3539	1534	57	3539	1583	1373	1688		1147	1755	
Peak-hour factor, PHF	0.81	0.81	0.81	0.74	0.74	0.74	0.84	0.84	0.84	0.80	0.80	0.80
Adj. Flow (vph)	46	3017	306	107	1785	41	185	30	50	25	19	12
RTOR Reduction (vph)	0	0	35	0	0	11	0	33	0	0	11	0
Lane Group Flow (vph)	46	3017	271	107	1785	30	185	47	0	25	20	0
Confl. Peds. (#/hr)			2	2								
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	137.0	131.0	131.0	135.0	130.0	130.0	24.0	19.5		24.0	19.5	
Effective Green, g (s)	137.0	131.0	131.0	135.0	130.0	130.0	24.0	19.5		24.0	19.5	
Actuated g/C Ratio	0.76	0.73	0.73	0.75	0.72	0.72	0.13	0.11		0.13	0.11	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	166	2575	1116	90	2555	1143	192	182		168	190	
v/s Ratio Prot	0.01	0.85		c0.03	0.50		c0.02	0.03		0.00	0.01	
v/s Ratio Perm	0.20		0.18	c0.85		0.02	c0.10			0.02		
v/c Ratio	0.28	1.17	0.24	1.19	0.70	0.03	0.96	0.26		0.15	0.11	
Uniform Delay, d1	14.1	24.5	8.1	64.7	14.0	7.1	77.0	73.6		68.6	72.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.1	81.8	0.5	154.3	1.6	0.0	56.1	3.4		1.9	1.1	
Delay (s)	18.2	106.3	8.6	219.0	15.6	7.1	133.1	77.0		70.4	73.5	
Level of Service	B	F	A	F	B	A	F	E		E	E	
Approach Delay (s)		96.2			26.7			116.1			72.2	
Approach LOS		F			C			F			E	
Intersection Summary												
HCM 2000 Control Delay			73.0			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.14									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			91.1%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd

Rogers Bridge Road Tract
PM Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	170	538	2	0	400	53	1	2	1	28	4	138
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.85	0.85	0.85	0.50	0.50	0.50	0.97	0.97	0.97
Hourly flow rate (vph)	177	560	2	0	471	62	2	4	2	29	4	142
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	533			562			1562	1449	561	1421	1418	502
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	533			562			1562	1449	561	1421	1418	502
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			100			97	96	100	70	96	75
cM capacity (veh/h)	1035			1009			58	109	527	96	113	569
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	740	533	8	175								
Volume Left	177	0	2	29								
Volume Right	2	62	2	142								
cSH	1035	1009	106	298								
Volume to Capacity	0.17	0.00	0.08	0.59								
Queue Length 95th (ft)	15	0	6	87								
Control Delay (s)	4.0	0.0	41.6	32.9								
Lane LOS	A		E	D								
Approach Delay (s)	4.0	0.0	41.6	32.9								
Approach LOS			E	D								
Intersection Summary												
Average Delay			6.2									
Intersection Capacity Utilization			84.3%		ICU Level of Service				E			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

3: Rogers Bridge Rd & Site Driveway #1

Rogers Bridge Road Tract
PM Build 2020




















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	R
Volume (veh/h)	10	15	214	16	26	209
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	16	233	17	28	227
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	525	241			250	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	525	241			250	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	98			98	
cM capacity (veh/h)	502	798			1316	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	27	250	255			
Volume Left	11	0	28			
Volume Right	16	17	0			
cSH	645	1700	1316			
Volume to Capacity	0.04	0.15	0.02			
Queue Length 95th (ft)	3	0	2			
Control Delay (s)	10.8	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	10.8	0.0	1.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			38.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Rogers Bridge Rd & Site Driveway #2

Rogers Bridge Road Tract
PM Build 2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	2	5	14	1	23	8	200	24	39	167	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	2	5	15	1	25	9	217	26	42	182	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	534	534	189	515	515	217	196			243		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	534	534	189	515	515	217	196			243		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	99	97	100	97	99			97		
cM capacity (veh/h)	429	435	853	452	446	822	1377			1323		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	16	41	226	26	238							
Volume Left	9	15	9	0	42							
Volume Right	5	25	0	26	14							
cSH	516	621	1377	1700	1323							
Volume to Capacity	0.03	0.07	0.01	0.02	0.03							
Queue Length 95th (ft)	2	5	0	0	2							
Control Delay (s)	12.2	11.2	0.3	0.0	1.6							
Lane LOS	B	B	A		A							
Approach Delay (s)	12.2	11.2	0.3		1.6							
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			36.0%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 5: Rogers Bridge Rd & Site Driveway #3

Rogers Bridge Road Tract
PM Build 2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	1	
Volume (veh/h)	11	2	3	222	168	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	2	3	241	183	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	440	192	202			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440	192	202			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	573	849	1370			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	14	245	202			
Volume Left	12	3	0			
Volume Right	2	0	20			
cSH	603	1370	1700			
Volume to Capacity	0.02	0.00	0.12			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.1	0.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.1	0.1	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization		24.1%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

6: Bell Rd & Site Driveway #4

Rogers Bridge Road Tract
PM Build 2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Volume (veh/h)	8	707	534	5	3	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	768	580	5	3	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	586				1369	583
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	586				1369	583
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	989				160	512
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	777	586	9			
Volume Left	9	0	3			
Volume Right	0	5	5			
cSH	989	1700	281			
Volume to Capacity	0.01	0.34	0.03			
Queue Length 95th (ft)	1	0	2			
Control Delay (s)	0.2	0.0	18.2			
Lane LOS	A		C			
Approach Delay (s)	0.2	0.0	18.2			
Approach LOS			C			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			53.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM 2010 Roundabout
2: Rogers Bridge Rd & Bell Rd




















Rogers Bridge Road Tract
AM No Build 2020 (Roundabout Improvement)

Intersection				
Intersection Delay, s/veh	14.9			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	537	788	4	280
Demand Flow Rate, veh/h	547	804	4	286
Vehicles Circulating, veh/h	50	78	593	741
Vehicles Exiting, veh/h	977	519	4	141
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.4	18.0	6.0	17.0
Approach LOS	A	C	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	547	804	4	286
Cap Entry Lane, veh/h	1075	1045	624	539
Entry HV Adj Factor	0.981	0.981	0.980	0.979
Flow Entry, veh/h	537	788	4	280
Cap Entry, veh/h	1055	1025	612	527
V/C Ratio	0.509	0.769	0.006	0.531
Control Delay, s/veh	9.4	18.0	6.0	17.0
LOS	A	C	A	C
95th %tile Queue, veh	3	8	0	3

HCM Signalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd

Rogers Bridge Road Tract
AM No Build 2020 (Signal Improvement)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	412	1	0	653	56	0	2	0	41	3	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Frt	1.00	1.00			0.99			1.00		1.00	0.85	
Flt Protected	0.95	1.00			1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	1862			1843			1863		1770	1587	
Flt Permitted	0.24	1.00			1.00			1.00		0.76	1.00	
Satd. Flow (perm)	449	1862			1843			1863		1407	1587	
Peak-hour factor, PHF	0.89	0.89	0.89	0.90	0.90	0.90	0.50	0.50	0.50	0.89	0.89	0.89
Adj. Flow (vph)	73	463	1	0	726	62	0	4	0	46	3	231
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	176	0
Lane Group Flow (vph)	73	464	0	0	784	0	0	4	0	46	58	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	51.0	51.0			51.0			19.0		19.0	19.0	
Effective Green, g (s)	51.0	51.0			51.0			19.0		19.0	19.0	
Actuated g/C Ratio	0.64	0.64			0.64			0.24		0.24	0.24	
Clearance Time (s)	5.0	5.0			5.0			5.0		5.0	5.0	
Lane Grp Cap (vph)	286	1187			1174			442		334	376	
v/s Ratio Prot		0.25			c0.43			0.00			c0.04	
v/s Ratio Perm	0.16									0.03		
v/c Ratio	0.26	0.39			0.67			0.01		0.14	0.15	
Uniform Delay, d1	6.3	7.0			9.2			23.3		24.0	24.1	
Progression Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2	2.1	1.0			3.0			0.0		0.9	0.9	
Delay (s)	8.4	8.0			12.2			23.3		24.9	25.0	
Level of Service	A	A			B			C		C	C	
Approach Delay (s)		8.0			12.2			23.3			25.0	
Approach LOS		A			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			13.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			75.3%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM 2010 Roundabout
2: Rogers Bridge Rd & Bell Rd




















Rogers Bridge Road Tract
PM No Build 2020 (Roundabout Improvement)

Intersection				
Intersection Delay, s/veh	11.2			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	695	514	8	141
Demand Flow Rate, veh/h	709	524	8	143
Vehicles Circulating, veh/h	25	144	728	478
Vehicles Exiting, veh/h	596	592	6	190
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.4	10.7	6.8	7.6
Approach LOS	B	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	709	524	8	143
Cap Entry Lane, veh/h	1102	978	546	701
Entry HV Adj Factor	0.980	0.980	0.990	0.985
Flow Entry, veh/h	695	514	8	141
Cap Entry, veh/h	1080	959	540	690
V/C Ratio	0.643	0.536	0.015	0.204
Control Delay, s/veh	12.4	10.7	6.8	7.6
LOS	B	B	A	A
95th %tile Queue, veh	5	3	0	1

HCM Signalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd

Rogers Bridge Road Tract
PM No Build 2020 (Signal Improvement)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	536	2	0	397	40	1	2	1	20	4	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Frt	1.00	1.00			0.99			0.97		1.00	0.85	
Flt Protected	0.95	1.00			1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	1862			1840			1778		1770	1593	
Flt Permitted	0.41	1.00			1.00			0.96		0.75	1.00	
Satd. Flow (perm)	756	1862			1840			1724		1402	1593	
Peak-hour factor, PHF	0.96	0.96	0.96	0.85	0.85	0.85	0.50	0.50	0.50	0.97	0.97	0.97
Adj. Flow (vph)	135	558	2	0	467	47	2	4	2	21	4	116
RTOR Reduction (vph)	0	0	0	0	4	0	0	1	0	0	86	0
Lane Group Flow (vph)	135	560	0	0	510	0	0	7	0	21	34	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	57.0	57.0			57.0			23.0		23.0	23.0	
Effective Green, g (s)	57.0	57.0			57.0			23.0		23.0	23.0	
Actuated g/C Ratio	0.63	0.63			0.63			0.26		0.26	0.26	
Clearance Time (s)	5.0	5.0			5.0			5.0		5.0	5.0	
Lane Grp Cap (vph)	478	1179			1165			440		358	407	
v/s Ratio Prot		c0.30			0.28						c0.02	
v/s Ratio Perm	0.18							0.00		0.01		
v/c Ratio	0.28	0.47			0.44			0.01		0.06	0.08	
Uniform Delay, d1	7.4	8.7			8.4			25.0		25.3	25.5	
Progression Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2	1.5	1.4			1.2			0.1		0.3	0.4	
Delay (s)	8.8	10.0			9.6			25.1		25.6	25.9	
Level of Service	A	B			A			C		C	C	
Approach Delay (s)		9.8			9.6			25.1			25.8	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			11.5			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				10.0		
Intersection Capacity Utilization			71.4%			ICU Level of Service				C		
Analysis Period (min)			15									




















c Critical Lane Group

Intersection				
Intersection Delay, s/veh	17.5			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	562	800	4	358
Demand Flow Rate, veh/h	573	816	4	365
Vehicles Circulating, veh/h	79	97	648	743
Vehicles Exiting, veh/h	1029	555	4	170
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.5	19.9	6.3	23.5
Approach LOS	B	C	A	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	573	816	4	365
Cap Entry Lane, veh/h	1044	1025	591	537
Entry HV Adj Factor	0.980	0.981	0.980	0.981
Flow Entry, veh/h	562	800	4	358
Cap Entry, veh/h	1023	1006	579	527
V/C Ratio	0.549	0.796	0.007	0.679
Control Delay, s/veh	10.5	19.9	6.3	23.5
LOS	B	C	A	C
95th %tile Queue, veh	3	9	0	5

HCM Signalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd

Rogers Bridge Road Tract
AM Build 2020 (Signal Improvement)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	418	1	0	655	65	0	2	0	67	3	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Frt	1.00	1.00			0.99			1.00		1.00	0.85	
Flt Protected	0.95	1.00			1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	1862			1840			1863		1770	1586	
Flt Permitted	0.23	1.00			1.00			1.00		0.76	1.00	
Satd. Flow (perm)	435	1862			1840			1863		1407	1586	
Peak-hour factor, PHF	0.89	0.89	0.89	0.90	0.90	0.90	0.50	0.50	0.50	0.89	0.89	0.89
Adj. Flow (vph)	91	470	1	0	728	72	0	4	0	75	3	280
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	188	0
Lane Group Flow (vph)	91	471	0	0	796	0	0	4	0	75	95	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	51.0	51.0			51.0			19.0		19.0	19.0	
Effective Green, g (s)	51.0	51.0			51.0			19.0		19.0	19.0	
Actuated g/C Ratio	0.64	0.64			0.64			0.24		0.24	0.24	
Clearance Time (s)	5.0	5.0			5.0			5.0		5.0	5.0	
Lane Grp Cap (vph)	277	1187			1173			442		334	376	
v/s Ratio Prot		0.25			c0.43			0.00			c0.06	
v/s Ratio Perm	0.21									0.05		
v/c Ratio	0.33	0.40			0.68			0.01		0.22	0.25	
Uniform Delay, d1	6.6	7.0			9.3			23.3		24.6	24.7	
Progression Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2	3.1	1.0			3.2			0.0		1.6	1.6	
Delay (s)	9.8	8.0			12.4			23.3		26.1	26.4	
Level of Service	A	A			B			C		C	C	
Approach Delay (s)		8.3			12.4			23.3			26.3	
Approach LOS		A			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			14.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			88.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 Roundabout
2: Rogers Bridge Rd & Bell Rd




















Rogers Bridge Road Tract
PM Build 2020 (Roundabout Improvement)

Intersection				
Intersection Delay, s/veh	12.6			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	739	533	8	175
Demand Flow Rate, veh/h	754	543	8	179
Vehicles Circulating, veh/h	34	187	782	482
Vehicles Exiting, veh/h	627	603	6	248
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.0	12.1	7.2	8.4
Approach LOS	B	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	754	543	8	179
Cap Entry Lane, veh/h	1092	937	517	698
Entry HV Adj Factor	0.980	0.981	0.990	0.977
Flow Entry, veh/h	739	533	8	175
Cap Entry, veh/h	1070	919	512	682
V/C Ratio	0.690	0.579	0.015	0.257
Control Delay, s/veh	14.0	12.1	7.2	8.4
LOS	B	B	A	A
95th %tile Queue, veh	6	4	0	1

HCM Signalized Intersection Capacity Analysis

2: Rogers Bridge Rd & Bell Rd

Rogers Bridge Road Tract
PM Build 2020 (Signal Improvement)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	538	2	0	400	53	1	2	1	28	4	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Frt	1.00	1.00			0.98			0.97		1.00	0.85	
Flt Protected	0.95	1.00			1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	1862			1833			1778		1770	1591	
Flt Permitted	0.39	1.00			1.00			0.96		0.75	1.00	
Satd. Flow (perm)	732	1862			1833			1719		1402	1591	
Peak-hour factor, PHF	0.96	0.96	0.96	0.85	0.85	0.85	0.50	0.50	0.50	0.97	0.97	0.97
Adj. Flow (vph)	177	560	2	0	471	62	2	4	2	29	4	142
RTOR Reduction (vph)	0	0	0	0	5	0	0	1	0	0	106	0
Lane Group Flow (vph)	177	562	0	0	528	0	0	7	0	29	40	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	57.0	57.0			57.0			23.0		23.0	23.0	
Effective Green, g (s)	57.0	57.0			57.0			23.0		23.0	23.0	
Actuated g/C Ratio	0.63	0.63			0.63			0.26		0.26	0.26	
Clearance Time (s)	5.0	5.0			5.0			5.0		5.0	5.0	
Lane Grp Cap (vph)	463	1179			1160			439		358	406	
v/s Ratio Prot		c0.30			0.29						c0.03	
v/s Ratio Perm	0.24							0.00		0.02		
v/c Ratio	0.38	0.48			0.46			0.01		0.08	0.10	
Uniform Delay, d1	8.0	8.7			8.5			25.0		25.5	25.6	
Progression Factor	1.00	1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2	2.4	1.4			1.3			0.1		0.4	0.5	
Delay (s)	10.4	10.0			9.8			25.1		25.9	26.1	
Level of Service	B	B			A			C		C	C	
Approach Delay (s)		10.1			9.8			25.1			26.0	
Approach LOS		B			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			12.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			74.0%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group